केंद्रीय विद्यालय संगठन क्षेत्रीय कार्यालय रायपुर

Kendriya Vidyalaya Sangathan Regional Office Raipur

COMPUTER SCIENCE

Class - XII

Question Bank Term- II 2021-22

केंद्रीय विद्यालय संगठन क्षेत्रीय कार्यालय रायपुर

Kendriya Vidyalaya Sangathan Regional Office Raipur

MESSAGE FROM DUPUTY COMMISSIONER

It gives me immense pleasure to bring out the study material for 2nd Term in different subject of Classes X and XII for Raipur Region. All of us know that in the 1st Term Examination questions were objective but in 2nd Term questions will be subjective so once again to get our children acquainted and familiarized with the new scheme of examination and types of questions, it is of utmost significance that an extensive study material should be provided to our children. This question bank is in complete consonance with CBSE Circular Number 51 and 53 issued in the month of July 2021. It will help students to prepare themselves better for the examination. Sound and deeper knowledge of the Units and Chapters is must for grasping the concepts, understanding the questions. Study materials help in making suitable and effective notes for quick revision just before the examination.

Due to the unprecedented circumstances of COVID-19 pandemic the students and the teachers are getting very limited opportunity to interact face to face in the classes. In such a situation the supervised and especially prepared value points will help the students to develop their understanding and analytical skills together. The students will be benefitted immensely after going through the question bank and practice papers. The study materials will build a special bond and act as connecting link between the teachers and the students as both can undertake a guided and experiential learning simultaneously. It will help the students develop the habit of exploring and analyzing the ***Creative & Critical Thinking Skills***. The new concepts introduced in the question pattern related to case study, reasoning and ascertain will empower the students to take independent decision on different situational problems. The different study materials are designed in such a manner to help the students in their self-learning pace. It emphasizes the great pedagogical dictum that *'everything can be learnt but nothing can be taught'*. The self-motivated learning as well as supervised classes will together help them achieve the new academic heights.

I would like to extend my sincere gratitude to all the principals and the teachers who have relentlessly striven for completion of the project of preparing study materials for all the subjects. Their enormous contribution in making this project successful is praiseworthy.

Happy learning and best of luck!

Vinod Kumar
(Deputy Commissioner)

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Kendriya Vidyalaya Sangathan Regional Office Raipur

Our Patorn

Vinod Kumar

Deputy Commissioner

KVS RO Raipur

Smt.Biraja Mishra
Assistant Commissioner
KVS RO Raipur

Sh.A.K. Mishra
Assistant Commissioner
KVS RO Raipur

SUBJECT CO-ORDINATION BY

Mrs. Sandhya Lakra,
Principal, KV No. 4 Korba

CONTENT TEAM

Mrs. Tara Yadav, PGT CS, K V Bilaspur

Mr. P. L. Sahu, PGT CS, K V Dhamtari

Mr. Lokesh Singh, PGT CS, K V Mahasamund

COMPILATION, REVIEW & VETTING BY

Mr. Prakash Kumar Dewangan, PGT CS, KV No. 1 Shift II Raipur

TERM-2

Unit I: Computational Thinking and Programming – 2

- Data Structure: Stack, operations on stack (push & pop), implementation of stack using list.

Unit II: Computer Networks

- Evolution of networking: introduction to computer networks, evolution of networking (ARPANET, NSFNET, INTERNET)
- Data communication terminologies: concept of communication, components of data communication (sender, receiver, message, communication media, protocols), measuring capacity of communication media (bandwidth, data transfer rate), IP address, switching techniques (Circuit switching, Packet switching)
- Transmission media: Wired communication media (Twisted pair cable, Co-axial cable, Fiber-optic cable), Wireless media (Radio waves, Micro waves, Infrared waves

- Network devices (Modem, Ethernet card, RJ45, Repeater, Hub, Switch, Router, Gateway, WIFI card)
- Network topologies and Network types: types of networks (PAN, LAN, MAN, WAN), networking topologies (Bus, Star, Tree)
- Network protocol: HTTP, FTP, PPP, SMTP, TCP/IP, POP3, HTTPS, TELNET, VoIP
- Introduction to web services: WWW, Hyper Text Markup Language (HTML), Extensible Markup Language (XML), domain names, URL, website, web browser, web servers, web hosting

Unit III: Database Management

- Database concepts: introduction to database concepts and its need
- Relational data model: relation, attribute, tuple, domain, degree, cardinality, keys (candidate key, primary key, alternate key, foreign key)
- Structured Query Language: introduction, Data Definition Language and Data Manipulation Language, data type (char(n), varchar(n), int, float, date), constraints (not null, unique, primary key), create database, use database, show databases, drop database, show tables, create table, describe table, alter table (add and remove an attribute, add and remove primary key), drop table, insert, delete, select, operators (mathematical, relational and logical), aliasing, distinct clause, where clause, in, between, order by, meaning of null, is null, is not null, like, update command, delete command

- Aggregate functions (max, min, avg, sum, count), group by, having clause, joins :Cartesian product on two tables, equi-join and natural join
- Interface of python with an SQL database: connecting SQL with Python, performing insert, update, delete queries using cursor, display data by using fetchone(), fetchall(),

rowcount, creating database connectivity applications

1. Practical

S.No		Marks (Total 30)	Term-1 (15 Marks)	Term-2 (15 Marks)
1	**Lab Test:** 1. Python program	**8**	**6**	**2**
	2. 3 SQL Queries based on one/two table(s), 2 output questions based on SQL queries	**4**	**---**	**4**
2	Report file: Term – 1 : Minimum 15 Python programs based on Term - 1 Syllabus Term – 2 : • Minimum 3 Python programs based on Term-2 Syllabus • SQL Queries – Minimum 5 sets using one table / two tables. • Minimum 2 programs based on Python - SQL connectivity.	**7**	**4**	**3**
3	Project (using concepts learnt in Classes 11 and 12) Term – 1 : Synopsis of the project to be submitted by the students (documentation only, may not submit the code during Term - 1) Term - 2 : Final coding + Viva voce (Student will be allowed to modify their Term 1 document and submit the final executable code.)	**8**	**3**	**5**
4	Viva voce	**3**	**2**	**1**

2. Suggested Practical List:

Term-2

Python Programming

- Write a Python program to implement a stack using list.

Database Management

- Create a student table and insert data. Implement the following SQL commands on the student table:
    - ALTER table to add new attributes / modify data type / drop attribute
    - UPDATE table to modify data
    - ORDER By to display data in ascending / descending order
    - DELETE to remove tuple(s)
    - GROUP BY and find the min, max, sum, count and average
    - Joining of two tables.
- Similar exercise may be framed for other cases.
- Integrate SQL with Python by importing suitable module.

Database Management

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- Similar exercise may be framed for other cases.
- Integrate SQL with Python by importing suitable module.

3. Suggested Reading Material

- NCERT Textbook for COMPUTER SCIENCE (Class XII)
- Support Materials on the CBSE website.

4. Project

The aim of the class project is to create something that is tangible and useful using Python file handling/ Python-SQL connectivity. This should be done in groups of two to three students and should be started by students at least 6 months before the submission deadline. The aim here is to find a real world problem that is worthwhile to solve.

Students are encouraged to visit local businesses and ask them about the problems that they are facing. For example, if a business is finding it hard to create invoices for filing GST claims, then students can do a project that takes the raw data (list of transactions), groups the transactions by category, accounts for the GST tax rates,

and creates invoices in the appropriate format. Students can be extremely creative here. They can use a wide variety of Python libraries to create user friendly applications such as games, software for their school, software for their disabled fellow students, and mobile applications, of course to do some of these projects, some additional learning is required; this should be encouraged. Students should know how to teach themselves.

The students should be sensitised to avoid plagiarism and violations of copyright issues while working on projects. Teachers should take necessary measures for this.

COMPUTER NETWORKS

EVOLUTION OF NETWORKING

INTERNET

The **Internet** is a global network of billions of computers and other electronic devices.

ARPANET

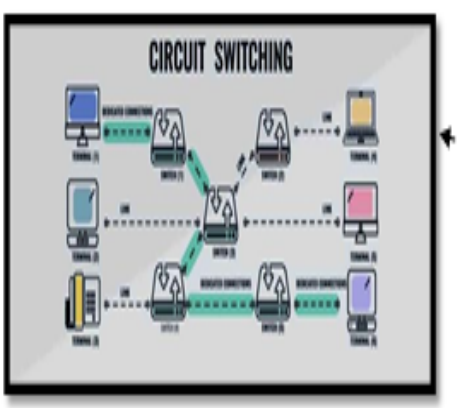
The Advanced Research Projects Agency Network (ARPANET)

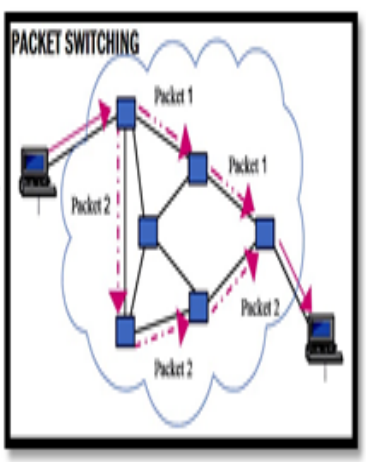
INTERSPACE

Interspace is a software that allows multiple users in a client-server environment to communicate with each other to send and receive data of various types such as data files, video, audio and textual data

EVOLUTION OF NETWORKING

SWITCHING TECHNIQUES

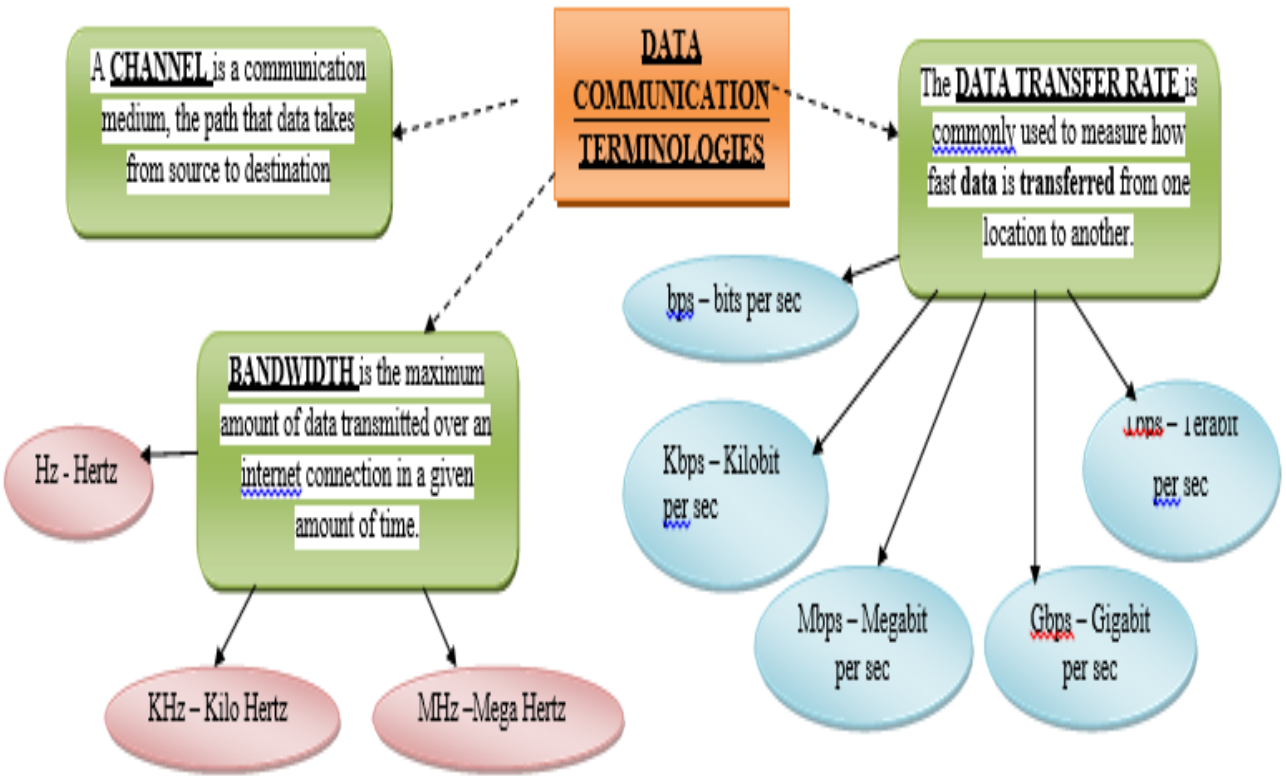




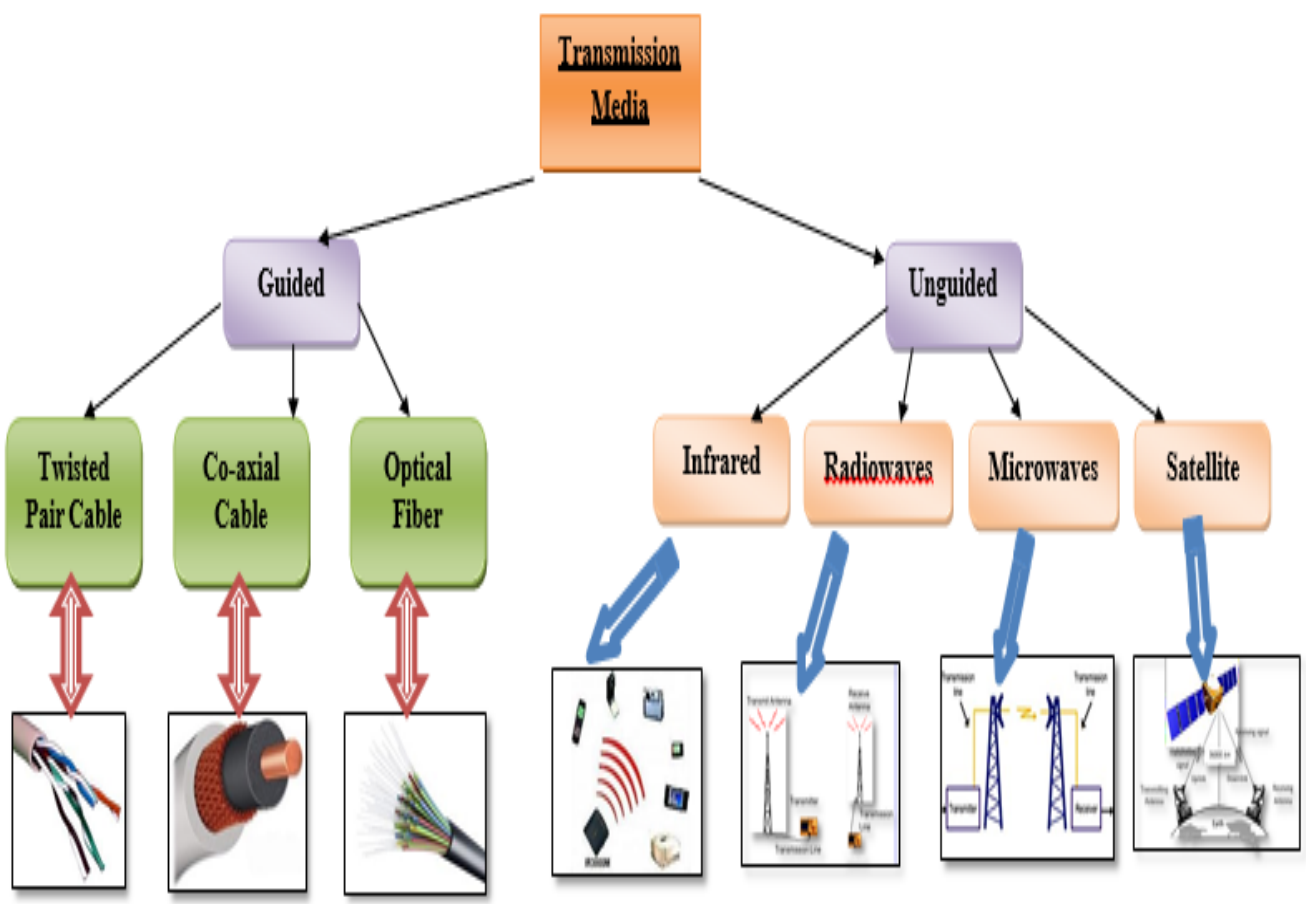
Differences Between Circuit & Packet Switching

Circuit-switching	Packet-Switching
Guaranteed capacity	No guarantees (best effort)
Capacity is wasted if data is bursty	More efficient
Before sending data establishes a path	Send data immediately
All data in a single flow follow one path	Different packets might follow different paths
No reordering; constant delay; no pkt drops	Packets may be reordered, delayed, or dropped

DATA COMMUNICATION TERMINOLOGIES



TRANSMISSION MEDIA



NETWORK DEVICES

Network Devices

MODEM – (modulator-demodulator), a device that makes it possible for computers to communicate with one another without being directly connected to each other.

RJ45 Connector – A registered jack (RJ) is a standardized physical network interface for connecting telecommunications or data equipment.

ROUTER – The router is a physical or virtual internetworking device that is designed to receive, analyze, and forward data packets between computer networks.

ETHERNET CARD – An **Ethernet card** is the communications hub for your computer; it connects to a **network** using a **network** cable.

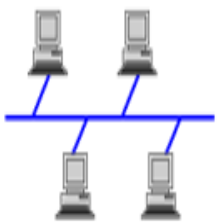
SWITCH – A **switch** is a device in a computer **network** that connects other devices together.

GATEWAY – A **gateway** is a **network** node that forms a passage between two **networks** operating with different transmission protocols.

WiFi CARD – It receives the **wireless** signal and communicates with the **wireless** network, enabling you to access the Web with your laptop.

NETWORK TOPOLOGIES

BUS – A **bus topology** is a **topology** for a Local Area **Network** (LAN) in which all the nodes are connected to a single cable



STAR – A **star topology** is a **topology** for a Local Area **Network** (LAN) in which all nodes are individually connected to a central connection point, like a hub or a switch.

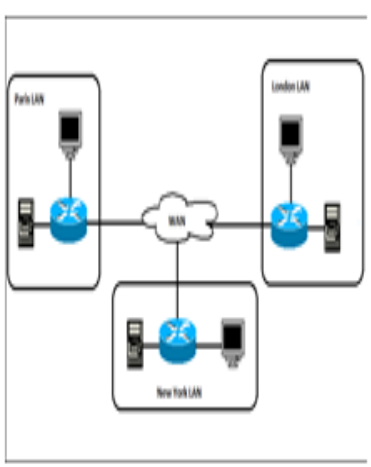
TREE – A **tree topology** is a special type of structure where many connected elements are arranged like the branches of a **tree**

NETWORK TOPOLOGIES

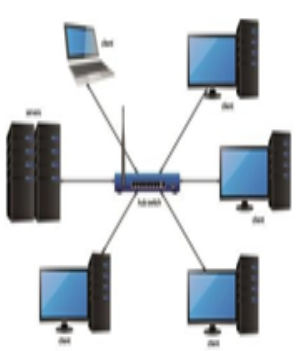
NETWORK TYPES

PAN – Personal Area Network

WAN – Wide Area Network



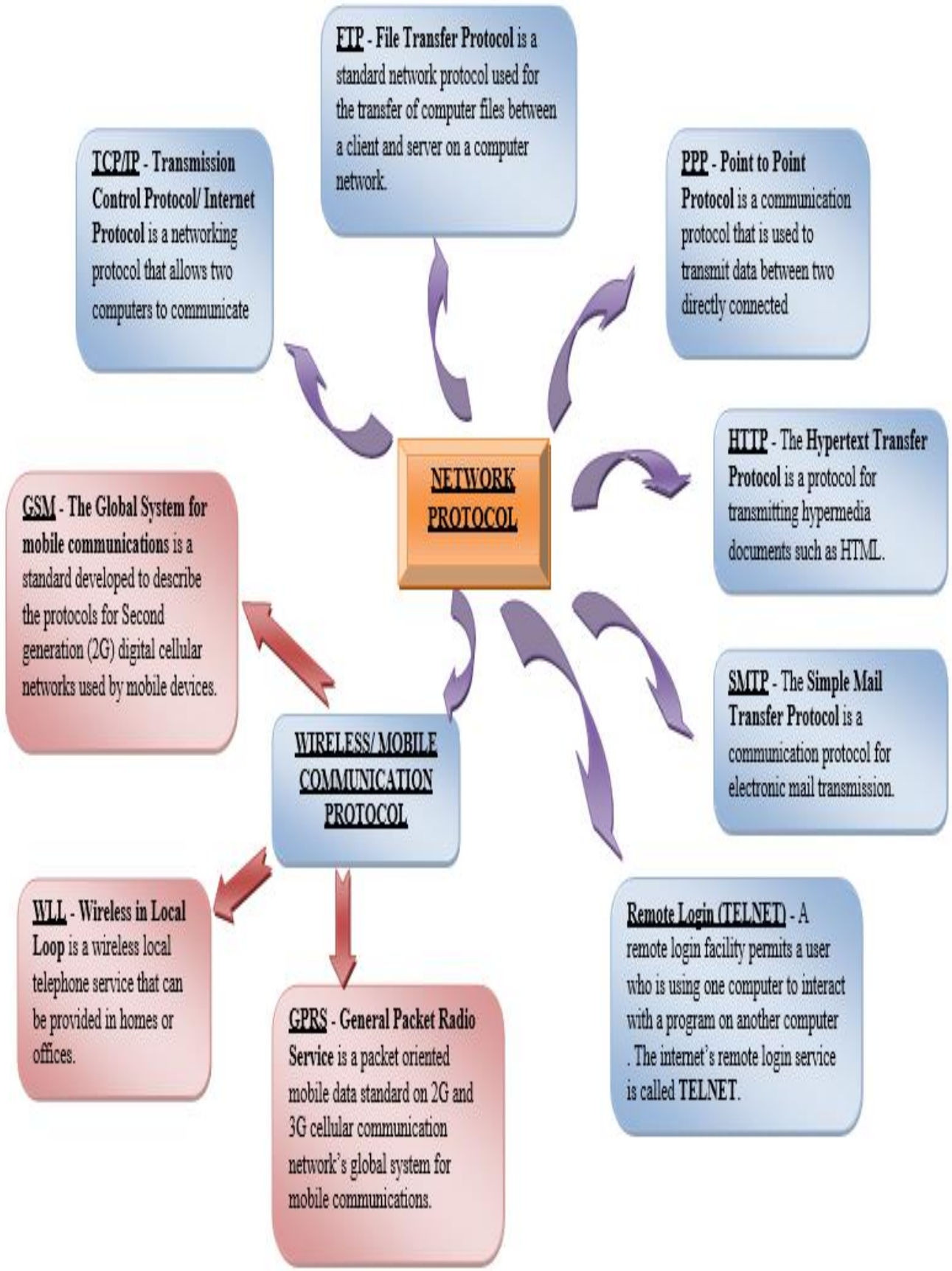
LAN – Local Area Network



LAN Network Diagram

MAN – Metropolitan Area Network

NETWORK PROTOCOL

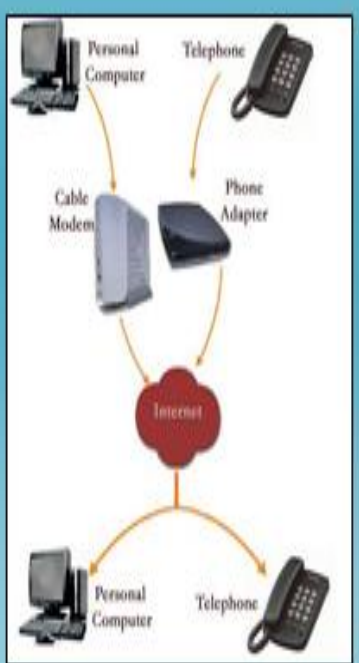


COMPARISON BETWEEN 1G, 2G, 3G, 4G AND 5G

Technology / Features	*1G*	*2/2.5G*	*3G*	*4G*	*5G*
Start/ Deployment	1970/ 1984	1980/ 1999	1990/ 2002	2000/ 2010	2010/ 2015
Data Bandwidth	2 kbps	14.4-64 kbps	2 Mbps	200 Mbps to 1 Gbps for low mobility	1 Gbps and higher
Standards	AMPS	2G: TDMA, CDMA, GSM 2.5G: GPRS, EDGE,1xRTT	WCDMA, CDMA-2000	Single unified standard	Single unified standard
Technology	Analog cellular technology	Digital cellular technology	Broad bandwidth CDMA, IP technology	Unified IP and seamless combination of broadband, LAN/WAN/	Unified IP and seamless combination of broadband,

VoIP – Voice Over Internet Protocol

It is a technology that allows you to make voice calls using a broadband internet connection instead of a regular phone line.

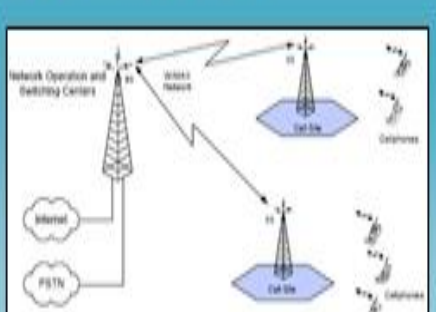


WiFi – Wireless Fidelity

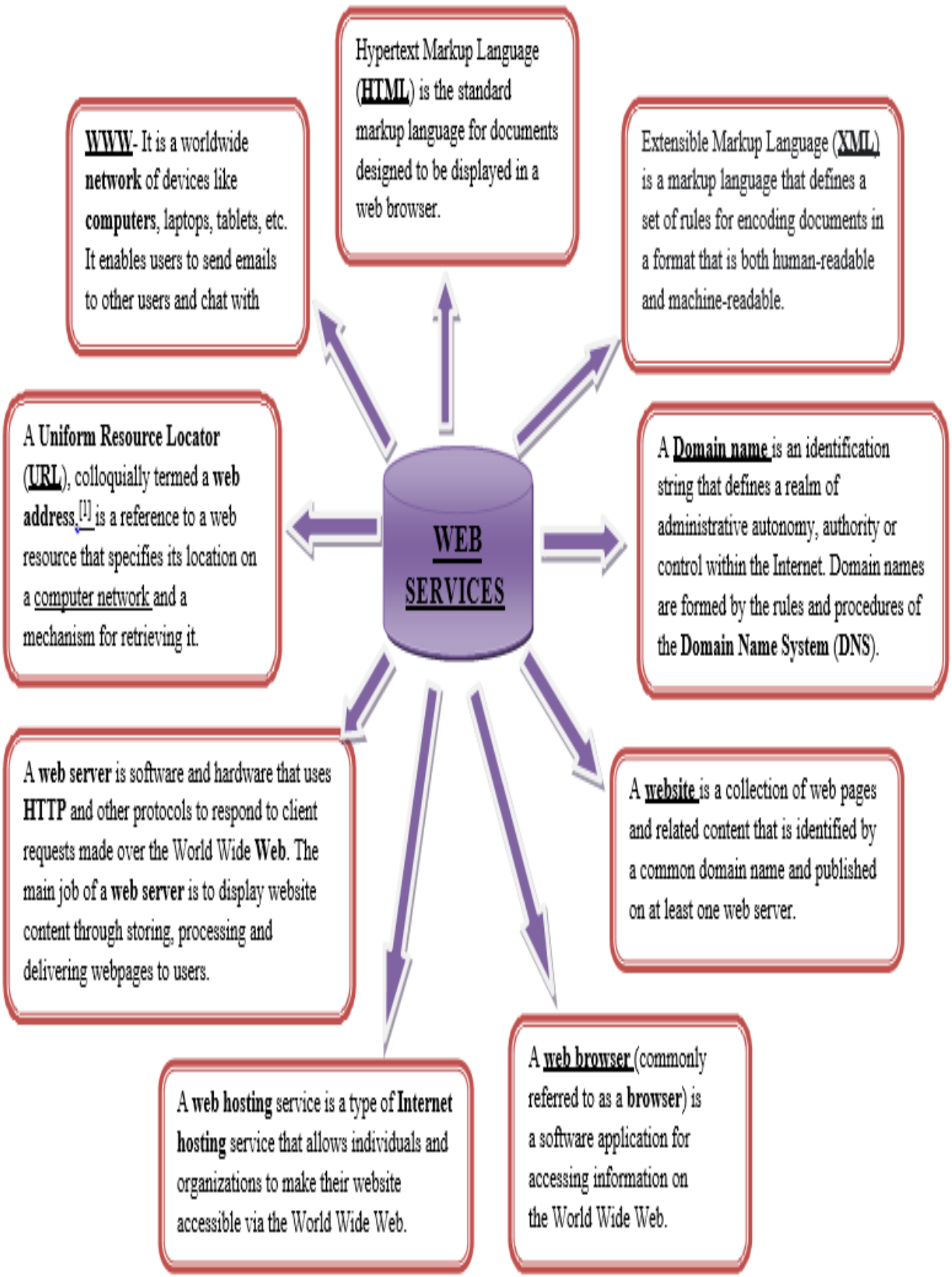
Wifi is a universal wireless networking technology that utilizes radio frequencies to transfer data.

WiMax –

WiMax stand for **Worldwide Interoperability for Microwave Access (AXess)**, and it is a technology for point to multipoint wireless networking. It provides high speed data over a wide area.



INTRODUCTION TO WEB SERVICES



Multiple Choice Questions (MCQs)

Choose the correct answer from the given below:

1. A Computer Network:
A. Is a collection of hardware components and computers?
B. Is interconnected by communication channels
C. Allows sharing of resources and information
D. All of the above

2. What is a Firewall in computer network?
A. The physical boundary of network
B. An operating system of computer network
C. A system designed to prevent unauthorized access
D. A web browsing software

3. What is the use of Bridge in the Network?
A. To connect LANs
B. To separate LANs
C. To control network speed
D. All of the above

4. Each IP packet must contain:
A. Only Source address
B. Only Destination address
C. Source and Destination address
D. Source or Destination address

5. Which of these is not a communication channel?
A. Satellite
B. Microwave
C. Radio wave
D. Wi-Fi

6. MAN Stands for _____.
A. Metropolitan Area Network
B. Main Area Network
C. Metropolitan Access Network
D. Metro Access Network

7. Which of the following is the smallest network?
A. WAN
B. MAN
C. PAN
D. LAN

8. Which transmission media is capable of having a much higher bandwidth (data capacity)?
A. Coaxial
B. Twisted pair cable
C. Untwisted cable

D. Fiber optic
9. Which type of transmission media is the least expensive to manufacture?
A. Coaxial
B. Twisted pair cable
C. CAT cable
D. Fiber optic
10. A device that forwards data packet from one network to another is called a
A. Bridge
B. Router
C. Hub
D. Gateway

11. What is a standalone computer?
A. A computer that is not connected to a network
B. A computer that is being used as a server
C. A computer that does not have any peripherals attached to it
D. A computer that is used by only one person

12. Which of the following is the fastest media of data transfer?
A. Co-axial Cable
B. Untwisted Wire
C. Telephone Lines
D. Fiber Optic

13. Hub is a
A. Broadcast device
B. Unicast device
C. Multicast device
D. None of the above

14. Switch is a
A. Broadcast device
B. Unicast device
C. Multicast device
D. None of the above

15. The device that can operate in place of a hub is a:
A. Switch
B. Bridge
C. Router
D. Gateway

16. In computer, converting a digital signal in to an analog signal is called
A. modulation
B. demodulation
C. conversion
D. transformation

17. What is the address size of IPv6?
A. 32 bit
B. 64 bit
C. 128 bit
D. 256 bit

18. Which of these is not an example of unguided media?
A. Optical Fibre Cable
B. Radio wave
C. Bluetooth
D. Satellite

19. Two devices are in network if
A. A process in one device is able to exchange information with a process in another device
B. A process is running on both devices
C. The processes running of different devices are of same type
D. None of the above.

20. Which of the following is not the Networking Devices?

A. Gateways

B. Linux

C. Routers

D. Firewalls

21. The location of a resource on the internet is given by its?
A. Protocol
B. URL
C. E-mail address
D. ICQ

22. The term HTTP stands for?
A. Hyper terminal tracing program
B. Hypertext tracing protocol
C. Hypertext transfer protocol
D. Hypertext transfer program

23. Which software prevents the external access to a system?
A. Firewall
B. Gateway
C. Router
D.Virus checker

24. Which one of the following is the most common internet protocol?
A.HTML

B.NetBEUI
C.TCP/IP
D.IPX/SPX

25. The term FTP stands for?
A.File transfer program
B.File transmission protocol
C.File transfer protocol
D.File transfer protection

26. Which one of the following is not a network topology?
A.Star
B.Ring
C.Bus
D.Peer to Peer

27. Which of the following is not an unit for data transfer rate?
A.MBPS
B.KBPS
C.SBPS
D.GBPS

28. This was the first network.
A.CSNET
B.NSFNET
C.ANSNET
D.ARPANET

29. A_____is a data communication system within a building, plant, orcampus, or between near by buildings.
A.MAN
B.LAN
C.WAN
D. None of the above

30. _____ is a collection of many separate networks
A. A MAN
B. An internet
C. A LAN
D. None of the above

31. A_____is a set of rules that governs data communication.
A. forum
B. protocol
C. standard
D. None of the above

32. Which of the following is required to communication between two computers?
A. Communication hardware
B. Communications software
C. Protocol
D. All of above including access to transmission medium

33. Bluetooth is an example of
A. Wide area network
B. Virtual private network
C. Local area network
D. Personal area network

34. A device which can be connected to a network without using cable is called
A. Distributed device
B. Centralized device
C. Open-source device
D. Wireless device

35. The vast network of computers that connects millions of people all over the world is called
A. Internet
B. Hypertext
C. LAN
D. Web

36. MAC address is of _____
A. 24 bits
B. 36 bits
C. 42 bits
D. 48 bits

37. Which of the following appears harmless but actually performs malicious functions such as deleting or damaging files.
A.WORM
B.Virus
C.Trojan Horse
D. Malware

38. Name the protocol that is used to send emails
A.FTP
B.SMTP
C.HTTP
D.TCP

39. Name the protocol that is used to receive emails
A.POP
B.VOIP

C.DHCP
D.FTP

40. Rajesh has purchased a new Smart TV and wants to cast a video from his mobile to his new Smart TV. Identify the type of network he is using:
A.LAN
B.MAN
C.WAN
D.PAN

41. The topology in which all nodes are individually connected to a central connection point:
A.Ring
B.Bus
C.Star
D.Tree

42. Which of the following best describes uploading information?
A.Sorting data on a disk drive
B.Sending information to a host computer
C.Receiving information from a host computer
D.Sorting data on a hard drive

43. The term IPv4 stands for?
A.Internet Protocol Version 4
B.Internet Programming Version 4
C.International Programming Version 4
D.None of these

4. In specific, if the systems use separate protocols, which one of the following devices is used to link two systems?
A.Repeater
B.Gateway
C.Bridge
D.Hub

45. DNS is the abbreviation of
A. Dynamic Name System
B. Dynamic Network System
C. Domain Name System
D. Domain Network Service

46. What is the meaning of Bandwidth in Network?
A. Transmission capacity of a communication channels
B. Connected Computers in the Network
C. Class of IP used in Network
D. None of Above

47. What does protocol defines?
A. Protocol defines what data is communicated.
B. Protocol defines how data is communicated.
C. Protocol defines when data is communicated.
D. All of above

48. Which of the following can be Software?
A. Routers
B. Firewalls
C. Gateway
D. Modems

49. The loss in signal power as light travels down the fiber is called.....
A. Attenuation
B.Propagation
C. Scattering
D.Interruption

50. Which of the following TCP/IP protocols is used for transferring files form one machine to another.
A. FTP
B. SNMP
C. SMTP
D. RPC

51. Which of the following protocol is used for remote terminal connection service?
A. RARP
B. UDP
C. FTP
D. TELNET

52. Which of the following is considered as the unsolicited commercial email?M
A.Virus
B.Malware
C.Spam
D.All of the above

53. It can be a software program or a hardware device that filters all data packets coming through the internet, a network, etc. it is known as the_____:
A.Antivirus
B.Firewall
C.Cookies
D.Malware

54. The term "TCP/IP" stands for_____

A.Transmission Contribution protocol/ internet protocol
B.Transmission Control Protocol/ internet protocol
C.Transaction Control protocol/ internet protocol
D.Transmission Control Protocol/ internet protocol

55. Which of the following is a type of independent malicious program that never required any host program?
A. Trojan Horse
B. Worm
C.Trap Door
D.Virus

56. In order to ensure the security of the data/ information, we need to _____ the data:
A.Encrypt
B.Decrypt
C.Delete
D.None of the above

57. Firewall is the type of ……..
A. Virus
B. Security threats
C. Worm
D. None of the above.

58. It allow a visited website to store its own information about a user on the user's computer:
A.Spam
B.cookies
C.Malware
D.Adware

59. In which of the following switching methods, the message is divided into small packets?
A. Message switching
B. Packet switching
C. Circuit switching
D. None of these

60. Which of the following switch methods creates a point-to-point physical connection between two or more computers?
A. Message switching
B. Packet switching
C. Circuit switching
D. None of these

61. MAC address is also called _____.

A.Physical address
B.Logical address
C.Source address
D.Destination address

62. ARPANET stands for _____.
A.Advanced Recheck Projects Agency Internet
B.Advanced Recheck Projects Agency Network
C.Advanced Research Projects Agency Network
D.Advanced Research Projects Agency Internet

63. Which of the following devices is not a networking device?
A.Hub
B.Switch
C.Bridge
D.None of these

64. How many pins does RJ-45 contain?
A.Two
B.Four
C.Eight
D.Ten

65. NIC Stands for –
A.Network identity card
B.Network interface code.
C.National interface card
D.Network interface card

66. Which of the following is not a type of guided or wired communication channel?
A.Twisted Pair
B.Coaxial
C.Fibre Optic
D.WiMax

67. Which of the following is not a type of unguided or wireless communications channel?
A. Microwave
B. Radiowave
C. Ethernet
D. Sattelite

68. Which of the following wireless medium consists of a parabolic antena mounted on towers?
A.Sattelite
B.Radiowave
C.Microwave
D.Infrared

69. Which of the following cable consist of a solid wire core surrounded by one or more foil or wire shields?
A.Ethernet Cables
B.Coaxial Cables
C.Fibre Optic Cables
D.Power Cable

70. A collection of hyperlinked documents on the internet forms the ?
A.World Wide Web (WWW)
B.E-mail system
C.Mailing list
D.Hypertext

71. Protocols are set of rules to govern _____
A. Communication
B. Standard
C. Metropolitan communication
D. Bandwidth

72. An internet is a _____

A. Collection of WANS

B. Network of networks

C. Collection of LANS

D. Collection of identical LANS and WANS

73. Which protocol is commonly used to retrieve email from a mail server?
A. FTP
B. IMAP
C. HTML
D. TELNET

74. Which of the following allows user to view a webpage?
A. Operating System
B. Website
C. Interpreter
D. Internet Browser

75. A network router joins two _____ together?
A. Computers
B. Switches
C. Networks
D. Gateway

76. A network point that provides entrance into another network is called as _____
A. Node

B. Gateway
C. Switch
D. Router

77. TELNET used _____ protocol for data connection
A. TCP
B. UDP
C. IP
D. DHCP

78. Google Chrome is example of :
A.Programming Language
B.Web Server
C.Protocol
D. Web Browser

79. Name the transmission media best suitable for connecting to hilly areas.
A.Co-axial Cable
B.Twisted pair
C. Microwave
D.Optical fiber.

80. Rahul wants to establish computer network in his cyber café, which of the following device will be suggested by you to connect each computer in the cafe?
A.Switch
B.Modem
C.Gateway
D.Repeater

Very Short Answer Type Questions (1 mark)

Q1. Give one example of each – Guided media and unguided media.

Ans: Guided – Twisted pair, Coaxial Cable, Optical Fiber (any one) Unguided – Radio waves, Satellite, Micro Waves (any one)

Q2. Name the protocol that is used to transfer file from one computer to another.

Ans:FTP

Q3. Name the transmission media best suitable for connecting to desert areas.

Ans: Microwave

Q4. Rearrange the following terms in increasing order of speedy medium of data transfer:Telephone line, Fiber Optics, Coaxial Cable, Twisted Paired Cable.

Ans: Telephone line, Twisted Pair Cable, Coaxial Cable, Fiber Optics.

Q5.Which of the following appears harmless but actually performs malicious

functions such asdeleting or damaging files.

(a) WORM (b)Virus (c) Trojan Horse (d)Malware

Ans: (c) Trojan Horse

Q6. Name the transmission media suitable to establish PAN.

Ans: Bluetooth, infra-red

Q7. Name the protocol that is used to upload and download files on internet.

Ans: FTP or HTTP

Q8.Name the protocol that is used to send emails.

Ans:-SMTP

Q9. Name the protocol that is used to receive emails.

Ans:-POP

Q10. Name the transmission media best suitable for connecting to hilly areas.

Ans: Microwave / Radio wave.

Q11. Name the fastest available transmission media.
Ans: OFC (Optical Fiber Cable)

Q12. Sunil has purchased a new Smart TV and wants to cast a video from his mobile to his new Smart TV. Identify the type of network he is using and explain it.
Ans: Sunil is using PAN-Personal Area Network. It is a private network which is setup by an individual to transfer data among his personal devices of home.

Short Answer Type Questions (2 mark)

Q1. Expand the following terms:
IPR – Intellectual Property Rights SIM – Subscriber"s Identity Module
IMAP – Internet Message Access ProtocolHTTP – Hypertext transfer Protocol
URL - Uniform Resource Locator POP3-Post office protocol ver. III SMTP- Simple Mail Transfer ProtocolVOIP- Voice over internet Protocol TCP- Transmission control protocol Wi-Fi - Wireless Fidelity
GPRS – General Packet Radio ServiceIRC – Internet Relay Chat
CDMA- Code Division Multiple AccessTDMA- Time Division Multiple AccessVPN-Virtual Private Network
FLOSS- Free Libre Open Source SoftwareXML-Extensible Markup Language

SMS–Short Messaging Service

GSM-Global system for mobile communication PHP- Hypertext Preprocessor

FTP- File Transfer Protocol

DHCP-Dynamic Host Configuration Protocol

Q2. What is difference between star topology and bus topology of network?

Answer:

In star topology, nodes are connected to server individually whereas in bus topology all nodes are connected to server along a single length of cable.

Q3.Write two advantages of using an optical fibre cable over an ethernet cable to connect two service stations, which are 190 m away from each other.

Answer:

Low power Because signals in optical fibres degrade less, lower power transmitters can be used.

Higher datarate Due to higher bandwidth, data rate of optical fibre is more than the data rate of ethernet cable (upto 1 Gbps).

Q4. Differentiate between packet switching and message switching technique in network communication.

Answer:

Message Switching In message switching data is stored in buffer form. The message is, sent to the nearest directly connected switching node. This process continues until data is delivered to the destination computer.

Packet Switching In this form of switching data is transferring into packet form. A fixed size of packet that can be transmitted across the network is specified. All the packets are stored in the main memory instead of disk.

Q5. Which type of network (out of LAN, PAN and MAN) is formed, when you connect two mobiles using bluetooth to transfer a picture file?

Answer:

When two mobiles are connected using bluetooth to transfer a picture file, a PAN(Personal Area Network) is created.

Q6. What is the difference between HTTP and FTP?

Answer:

FTP is a protocol used to upload files from a workstation to a FTP server or download files from a FTP server to a workstation.

HTTP is a protocol used to transfer files from a web server onto a browser in order to view a web page that is on the Internet.

Q7. What is the advantage of using SWITCH over HUB?

Answer:

Switch provides a dedicated line at full bandwidth between two devices but hub doesn't provide a dedicated line. Hub share the bandwidth.

Q8.What is difference between star topology and bus topology of network?

Answer:

In star topology, nodes are connected to server individually whereas in bus topology all nodes are connected to server along a single length of cable.

Q9.Define the term firewall.

Answer:

Firewall is a feature used for Network Security. In a Network there is always danger of information leaking out or leaking in. Firewall is a feature which forces all information entering or leaving the network to pass through a check to make sure that there is no unauthorized usage of the network.

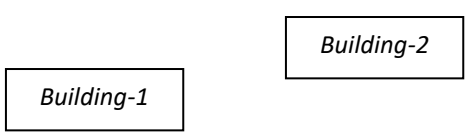
Q10.What is the importance of URL in networking?

Answer:

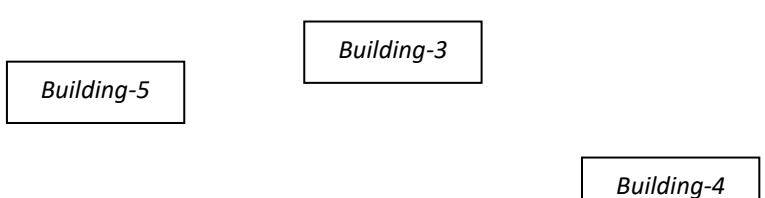
URL stands for Uniform Resource Locator. Each page that is created for Web browsing is assigned a URL that effectively serves as the page's worldwide name or address. URL's have three parts: the protocol, the DNS name of the machine on which the page is located and a local name uniquely indicating the specific page(generally the filename).

Long Answer Type Questions (5/4 marks)

Q1.PVS Computers decided to open a new office at Ernakulum, the office consist of Five Buildings andeach contains number of computers. The details are shown below.



Distance between the buildings



Building	20

1 and 2	Meters
Building 2 and 3	50 Meters
Building 3 and 4	120 Meters
Building 3 and 5	70 Meters
Building 1 and 5	65 Meters
Building 2 and 5	50 Meters

Computers in each building are networked but buildings are not networked so far. The Company hasnow decided to connect building also.

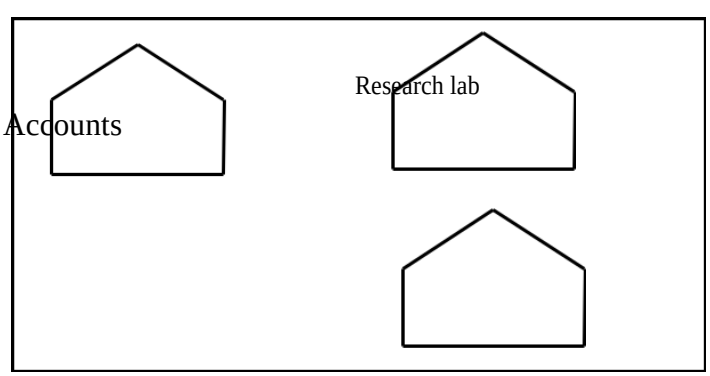
(i) Suggest a cable layout for connecting the buildings
(ii) Do you think anywhere Repeaters required in the campus? Why
(iii) The company wants to link this office to their head office at Delhi
(a) Which type of transmission medium is appropriate for such a link?
(b) What type of network would this connection result into?
(iv) Where server is to be installed? Why?
(v) Suggest the wired Transmission Media used to connect all buildings efficiently.

Ans:-

(i) Any efficient layout with shortest Wire length
(ii) Between 3 and 4 due to larger distance
(iii) (a) Wireless
(a) WAN
(iv) Building-3 due to maximum no of Computers
(v) Co- axial cable or fiber optics

Q2. Riana Medicos Centre has set up its new centre in Dubai. It has four buildings as shown in the diagram given below:

(4)



Store

Distance between various buildings is as follows:

Accounts to Research Lab	55 m
Accounts to Store	150 m
Store to Packaging Unit	160 m
Packaging Unit to Research Lab	60 m
Accounts to Packaging Unit	125 m
Store to Research Lab	180 m

Number of computers:

Accounts	25
Research Lab	100
Store	15
Packaging Unit	60

As a network expert, provide the best possible answer to the following queries:

(i) Suggest the type of network established between the buildings.

(ii) Suggest the most suitable place (i.e., building) to house the server of this organization.

(iii) Suggest the placement of the following devices with justification: Repeater, Switch

(iv) Suggest a system (hardware/software) to prevent unauthorized access to or from the network.

Ans. (i) LAN (Local Area Network)

(ii) Research Lab as it has the maximum number of computers.

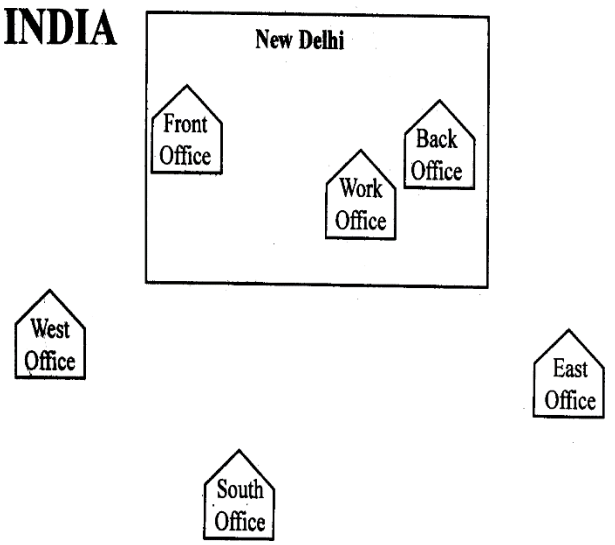
(iii) (a) Repeater: It should be placed between Accounts and Packaging Unit, Accounts to Research Lab, Store to Research Lab and Accounts to Packaging Unit.

(b) Switch should be placed in each of the buildings for better traffic management.

(iv) Firewall.

Q3. "Bhartiya Connectivity Association" is planning to spread their offices in four major cities in India to provide regional IT infrastructure support in the field of Education & Culture. The company has planned to setup their head office in New Delhi in three locations and have named their New Delhi offices as "Front Office", "Back Office" and "Work

Office". The company has three more regional offices as "South Office", "East Office" and "West Office" located in other three major cities of India. A rough layout of the same is as follows:



Approximate distance between these offices as per network survey team is as follows:

Place From	Place To	Distance
BackOffice	Front Office	10KM
Back Office	Work Office	70 Meter
Back Office	East Office	1291 KM
BackOffice	West Office	790 KM
Back Office	South Office	1952 KM

In continuation of the above, the company experts have planned to install the following number of computers in each of their offices:

Back Office	100
Front Office	20
Work Office	50
East Office	50
West Office	50
South Office	50

(i) Suggest network type (out of LAN, MAN, WAN) for connecting each of the following set of their offices:

• Back Office and Work Office

• Back Office and South Office

(ii) Which device you will suggest to be procured by the company for connecting all the computers with in each of their offices out of the following devices?

• Switch/Hub
• Modem
• Telephone

(iii) Which of the following communication medium, you will suggest to be procured by the company for connecting their local offices in New Delhi for very effective and fast communication?

• Telephone Cable
• Optical Fiber
• Ethernet Cable

(iv) Suggest a cable/wiring layout for connecting the company's local offices located in New Delhi. Also, suggest an effective method/technology for connecting the company's regional offices-"East Office", "West Office" and "South Office" with offices located in New Delhi.

Answer:

(i) **Network type:** Head Office and Tech: LAN

Head Office and Coimbatore Office: WAN

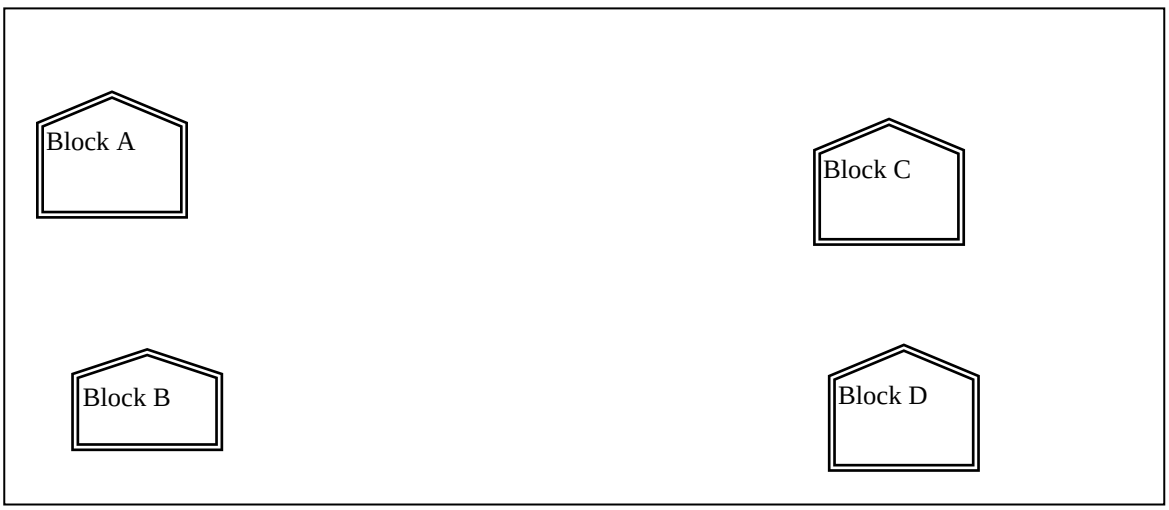
(ii) Switch/Hub

(iii) Optical fiber

(iv) (a) Optical Fiber/Star Topology

(b) Wireless

Q4. Knowledge Supplement Organization has set up its new center at Mangalore for its office and web based activities. It has 4 blocks of buildings as shown in the diagram below:



Center to center distances between various blocks

Black A to Block B	50 m
Block B to Block C	150 m
Block C to Block D	25 m
Block A to Block D	170 m
Block B to Block D	125 m
Block A to Block C	90 m

Number of Computers

Black A	25
Block B	50
Block C	125
Block D	10

a) Suggest a cable layout of connections between the blocks.

b) Suggest the most suitable block to house the server of this organisation with a suitable reason n

c) Suggest the placement of the following devices with justification

(i) Repeater

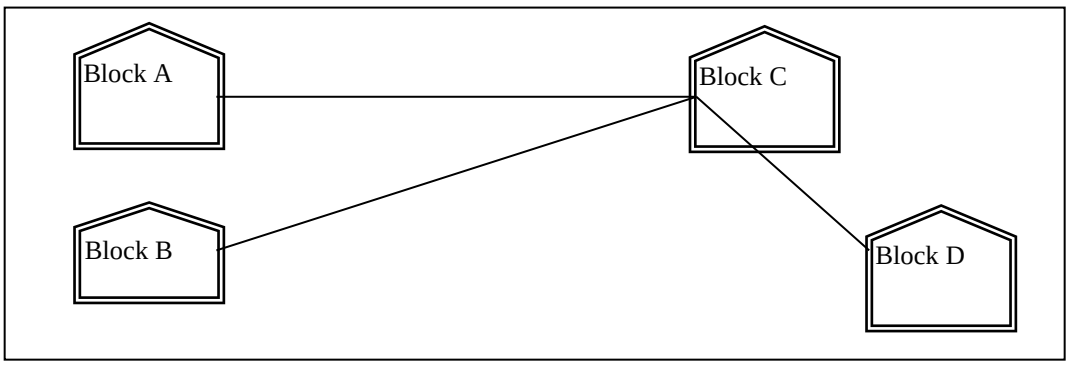
(ii) Hub/Switch

d) The organization is planning to link its front office situated in the city in a hilly region where cable connection is not feasible, suggest an economic way to connect it with reasonably high speed?

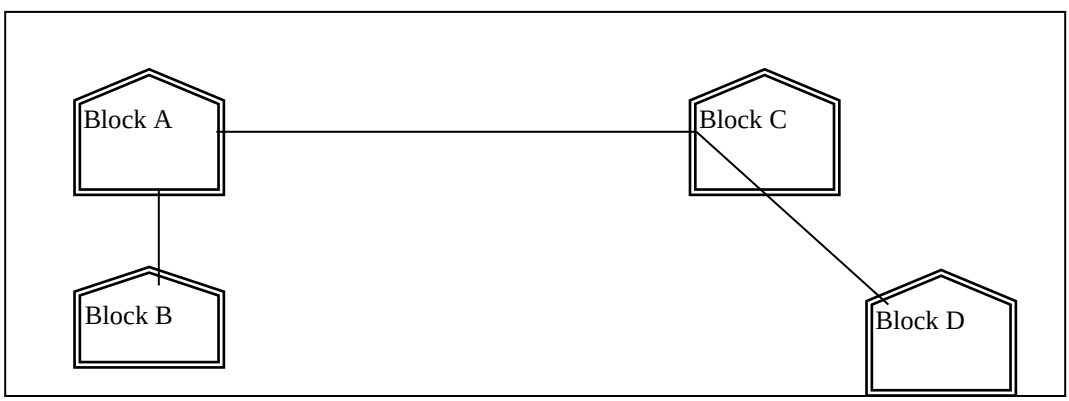
Answer:

(a) Any of the following option

Layout Option 1:



Layout Option 2: Since the distance between Block A and Block B is quite short



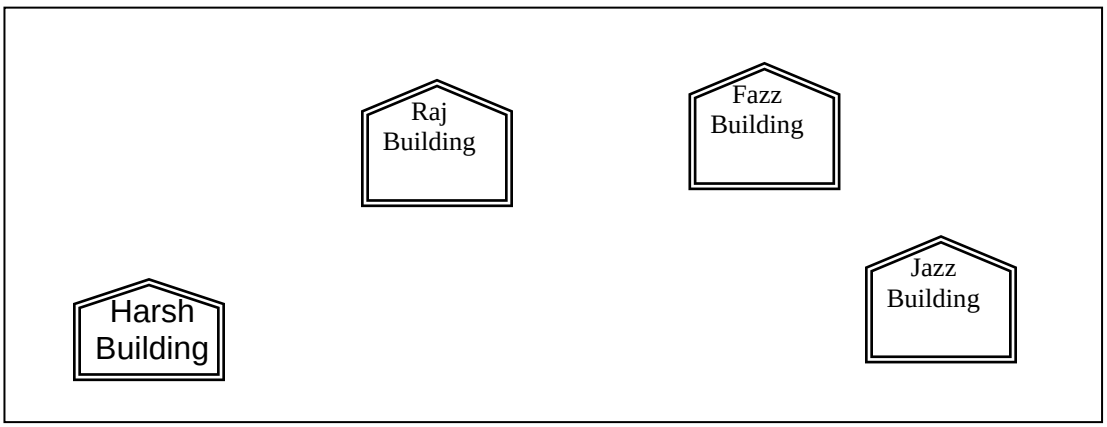
(b) The most suitable place / block to house the server of this organization would be Block C, as this block contains the maximum number of computers, thus decreasing the cabling cost for most of the computers as well as increasing the efficiency of the maximum computers in the network.

(c) For Layout 1, since the cabling distance between Blocks A and C, and that between B and C are quite large, so a repeater each, would ideally be needed along their path to avoid loss of signals during the course of data flow in these routes

For layout 2, since the distance between Blocks A and C is large so a repeater would ideally be placed in between this path

(d) The most economical way to connect it with a reasonable high speed would be to use radio wave transmission, as they are easy to install, can travel long distances, and penetrate buildings easily, so they are widely used for communication, both indoors and outdoors.

Q5. Ravya Industries has set up its new center at Kaka Nagar for its office and web based activities. The company compound has 4 buildings as shown in the diagram below:



Center to center distances between various buildings is as follows:

Harsh Building to Raj Building	50 m
Raz Building to Fazz Building	60 m
Fazz Building to Jazz Building	25 m
Jazz Building to Harsh Building	170 m
Harsh Building to Fazz Building	125 m
Raj Building to Jazz Building	90 m

Number of Computers in each of the buildings is follows:

Harsh Building	15
Raj Building	150
Fazz Building	15
Jazz Bulding	25

a) Suggest a cable layout of connections between the buildings.

b) Suggest the most suitable place (i.e. building) to house the server of this organization with a suitable reason.

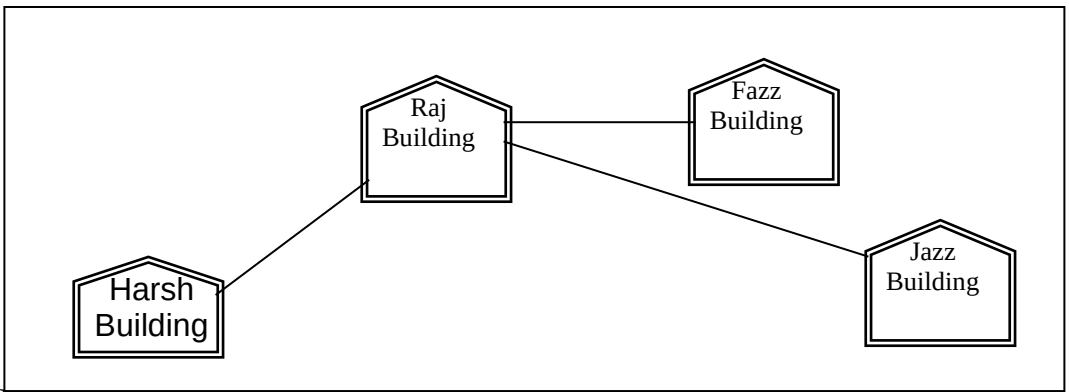
c) Suggest the placement of the following devices with justification:
(i) Internet Connecting Device/Modem
(ii) Switch

d) The organization is planning to link its sale counter situated in various parts of the same city, which type of network out of LAN, MAN or WAN will be formed? Justify your answer.

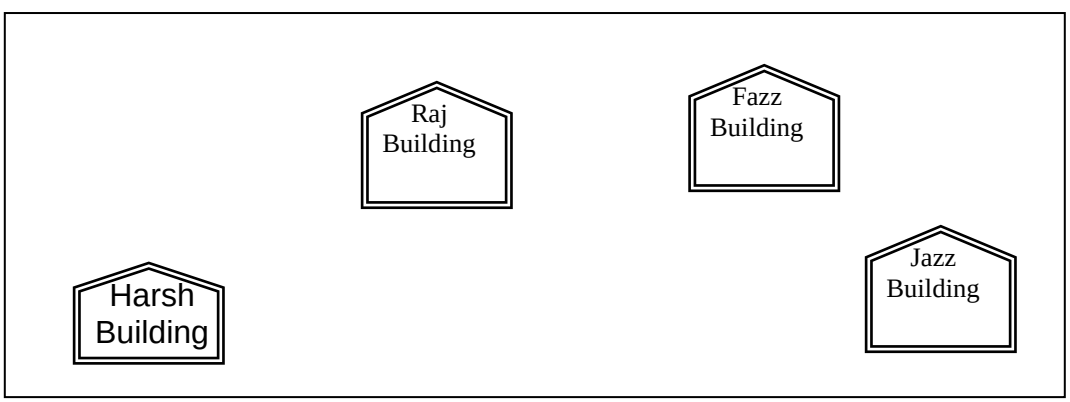
Answer:

a)

Layout 1:



Layout 2: Since the distance between Fazz Building and Jazz Building is quite short



b) the most suitable place (i.e. building) to house the server is Raj Building, as this block contains the maximum number of computers, thus decreasing the cabling cost for most of the computers as well as increasing the efficiency of the maximum computers in the network.

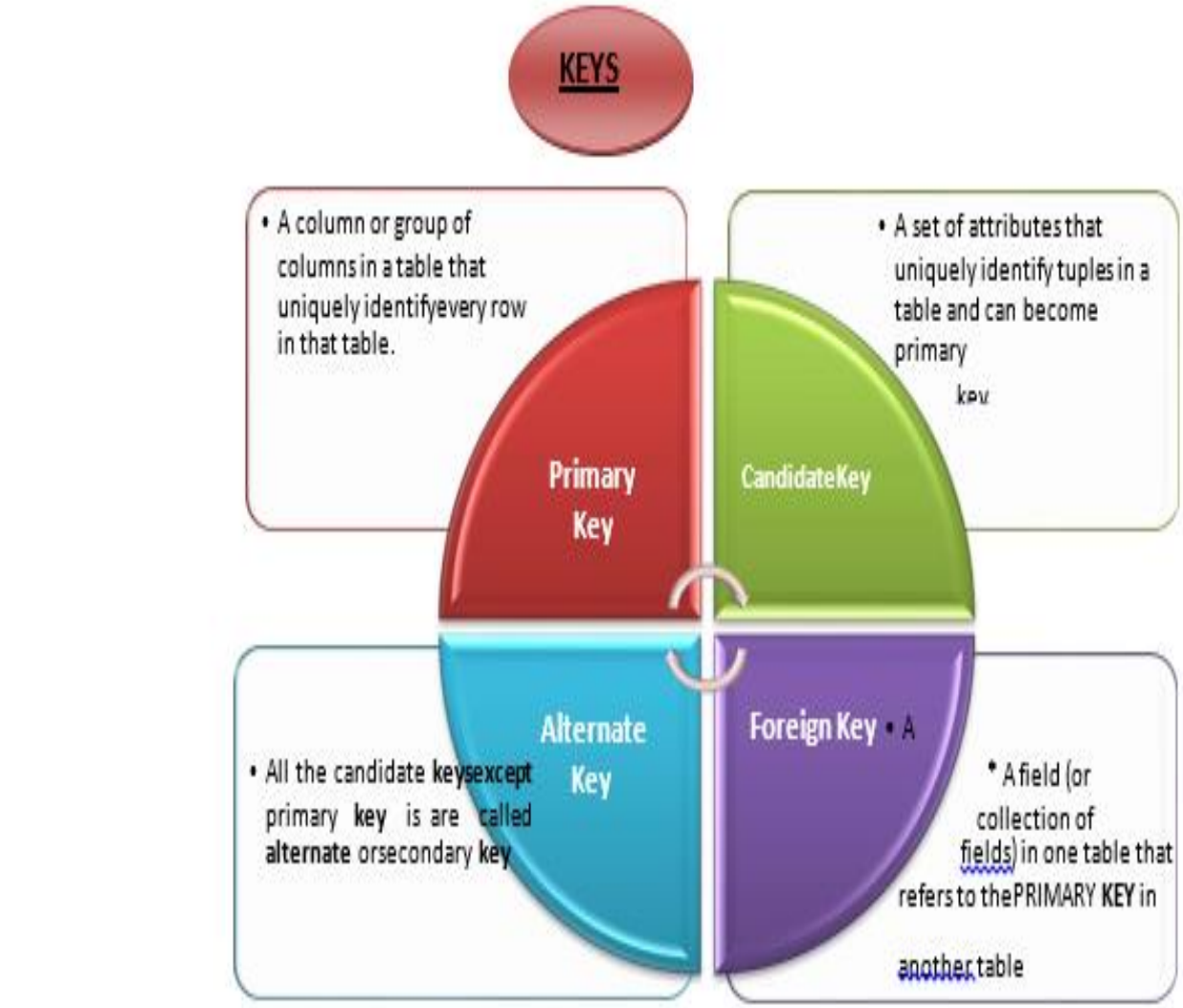
c) (i) Raj Building

(ii)In both the layouts, a hub/switch each would be needed in all the buildings, to interconnect the group of cables from the different computers in each block

d) The type of network that shall be formed to link the sale counters situated in various parts of the same city would be a MAN, because MAN (Metropolitan Area Networks) are the networks that link computer facilities within a city.

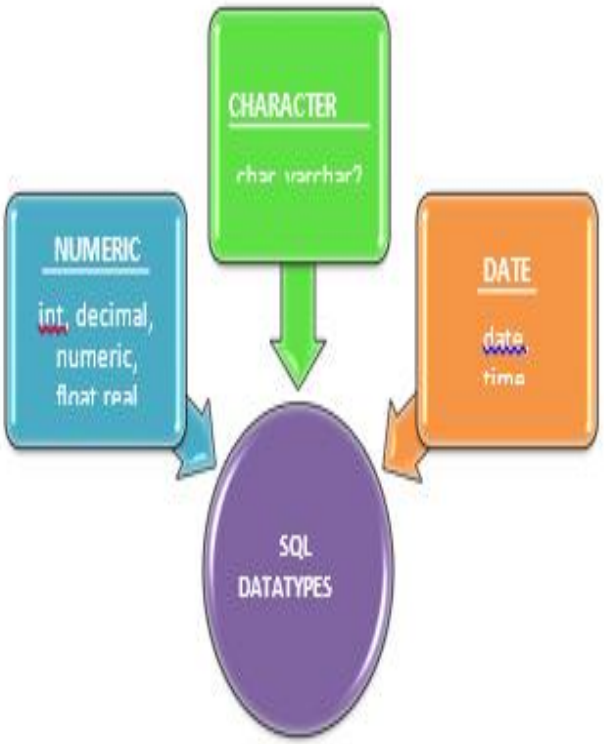
ANSWER KEY (MCQs):

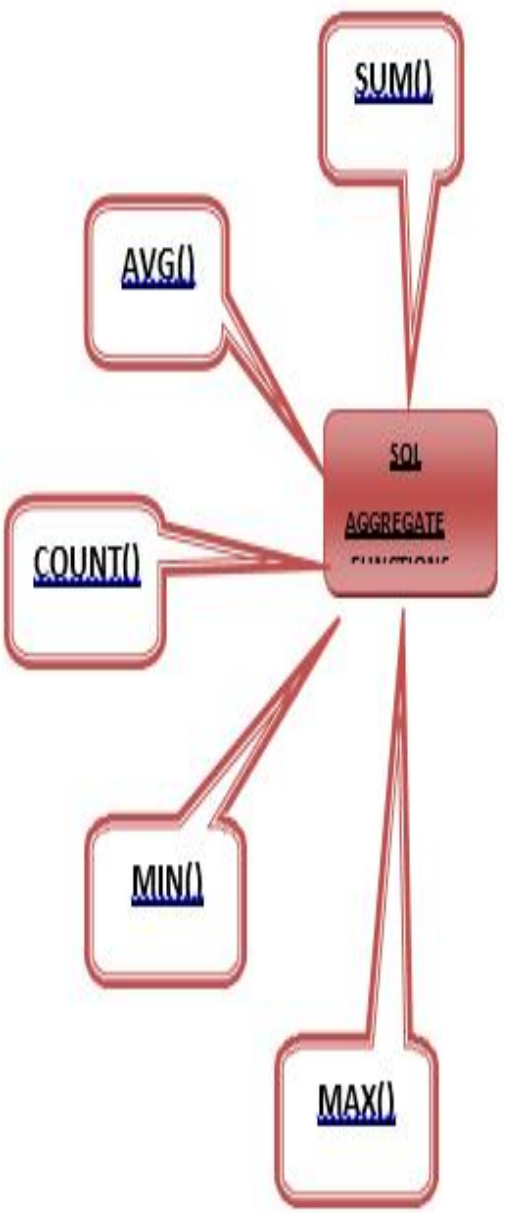
QUS	1	2	3	4	5	6	7	8	9	10
ANS	D	C	A	C	D	A	C	D	B	B
QUS		12	13	14	15	16	17	18	19	20
ANS	A	D	A	B	A	A	C	A	A	B
QUS	21	22	23	24	25	26	27	28	29	30
ANS	B	C	A	C	C	D	C	D	B	B
QUS	31	32	33	34	35	36	37	38	39	40
ANS	B	D	D	D	A	D	C	B	A	D
QUS	41	42	43	44	45	46	47	48	49	50
ANS	C	B	A	B	C	A	D	B	A	A
QUS	51	52	53	54	55	56	57	58	59	60
ANS	D	C	B	B	B	A	D	B	B	C
QUS	61	62	63	64	65	66	67	68	69	70
ANS	A	C	D	C	C	D	C	C	B	A
QUS	71	72	73	74	75	76	77	78	79	80
ANS	A	B	B	D	C	B	A	D	C	A



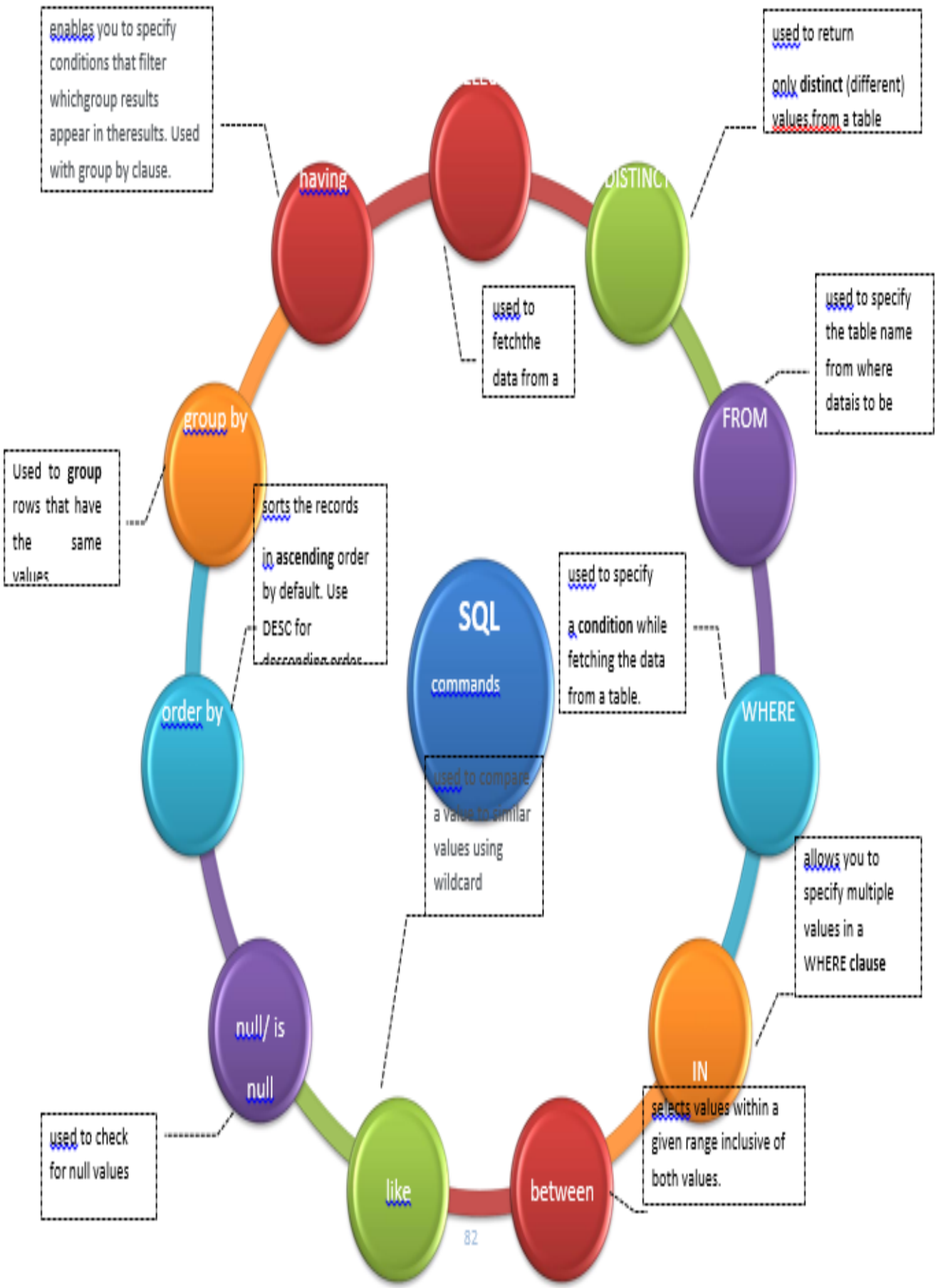
A data definition language (DDL) is a language used to define data structures and modify data.

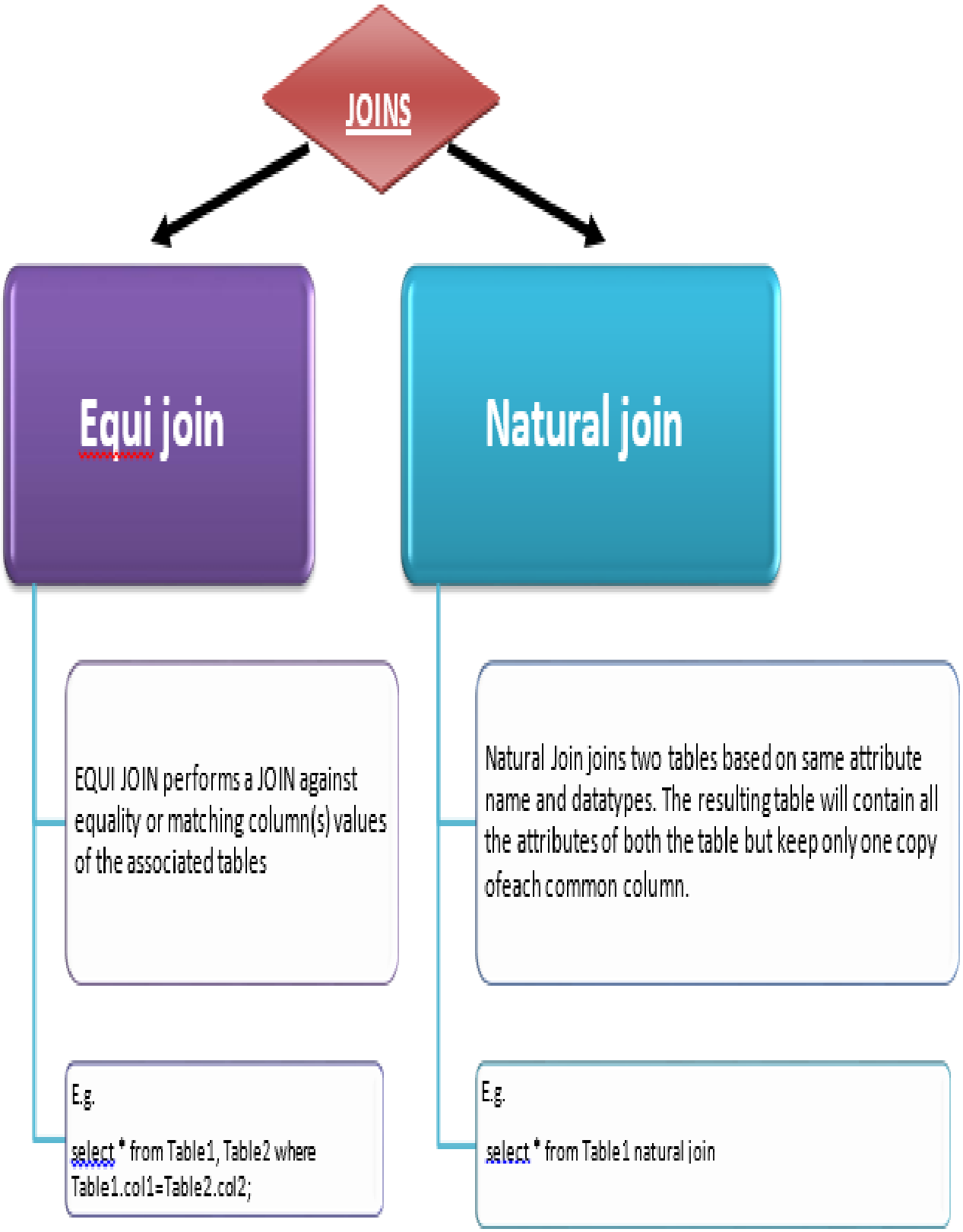
A data manipulation language (DML) is a language used for adding (inserting), deleting, andmodifying (updating) data in a database.





DDL	DML
It is Data Definition Language	It is Data Manipulation Language
These are used to define data structure	It is used to manipulate the existing databases.
It is used to define database structure or schema	It is used for managing data within schema objects
Commands are: CREATE, ALTER, DROP, TRUNCATE, RENAME	Commands are: SELECT, INSERT, DELETE, UPDATE, MERGE, CALL
It works on whole table	It works on one or more rows
It do not have a where clause to filter	It have where clause to filter records
Changes done by DDL commands cannot be rolled back	Changes can be rolled back
It is not further classified.	It is further classified as procedural and non procedural DML's
Example:- drop table tablename;	Select * from employee


SQL
commands
having
enables you to specify conditions that filter whichgroup results appear in theresults. Used with group by clause.
DISTINCT
used to return only distinct (different) values from a table
used to fetchthe data from a
FROM
used to specify the table name from where datais to be
group by
Used to group rows that have the same values
order by
sorts the records in ascending order by default. Use DESC for
WHERE
used to specify a condition while fetching the data from a table.
used to compare a value to similar values using wildcard
like
IN
allows you to specify multiple values in a WHERE clause
between
selects values within a given range inclusive of both values.
null/ is null
used to check for null values


JOINS
Equi join
Natural join
EQUI JOIN performs a JOIN against equality or matching column(s) values of the associated tables
Natural Join joins two tables based on same attribute name and datatypes. The resulting table will contain all the attributes of both the table but keep only one copy ofeach common column.
E.g.
select * from Table1, Table2 where Table1.col1=Table2.col2;
E.g.
select * from Table1 natural join

OBJECTIVE TYPE QUESTIONS /MULTIPLE CHOICE QUESTIONS

1. What is the full form of SQL?
   (a) Structured Query Language (b) Structured Query List
   (c) Simple Query Language (d) Data Derivation Language

2. What does DML stand for?
   (a) Different Mode Level (b) Data Model Language
   (c) Data Mode Lane (d) Data Manipulation Language

3. The _____clause of SELECT query allows us to select only those rows in the results that satisfy a specified condition.
   (a) Where (b) from (c) having (d) like

4. Which of the following function is used to FIND the largest value from the given data in MYSQL?
   (a) MAX () (b) MAXIMUM () (c) LARGEST () (c) BIG ()

5. The data types CHAR (n) and VARCHAR (n) are used to create _____ and _____ types of string/text fields in a database.
   (a) Fixed, equal (b) Equal, variable (c) Fixed, variable (d) Variable, equal

6. The term _____ is use to refer to a record in a table.
   (a) Attribute (b) Tuple (c) Row (d) Instance

7. Which command is used for cleaning up the environment (sql with Python)?
   (a) my.close (b) is.close (c) con.close (d) mycon.close

8. A relational database consists of a collection of
   (a) Tables (b) Fields (c) Records (d) Keys

9. What is the full form of DDL?
   (a) Dynamic Data Language (b) Detailed Data Language
   (c) Data Definition Language (d) Data Derivation Language

10. A(n) in a table represents a logical relationship among a set of values.
   (a) Attribute (b) Key (c) Tuple (d) Entry
11. Name the method which is used for displaying only one resultset.
   (a) fetchmany (b) fetchno (c) fetchall (d) fetchone

12. Name the host name used for signing in the database.
   (a) localhost (b) localpost (c) localcost (d) none of the above

13. A relational database consists of a collection of
   (a)Tuples (b) Attributes (c) Relations (d) Keys

14. Which is the subset of SQL commands used to manipulate database structure including tables?

(a) Data Definition Language (DDL) (b) Data Manipulation Language (DML)
(c) Both (a) and (b) (d) None

15. The term _____ is used to refer to a field in a table.
(a) Attribute (b) Tuple (c) Row (d) Instance

16. Consider the following table namely employee:

Employee_id	Name	Salary
5001	Amit	60000
5009	Sumit	45000
5020	Arpit	70000

Which of the names will not be displayed by the below given query?
SELECT name FROM employee WHERE employee_id>5009;
(a) Amit, Sumit (b) Sumit, Arpit (c) Arpit (d) Amit, Arpit

17. Consider the following query
SELECT name FROM stu WHERE subject LIKE '_____ Computer Science';
Which one of the following has to be added into the blank space to select the subject which has Computer Science as its ending string?
(a) $ (b) _ (c) || (d) %

18. Consider following SQL statement. What type of statement is this?
SELECT * FROM employee
(a) DML (b) DDL (c) DCL (d) Integrity constraint

19. Which of the following function is not an aggregate function?
(a) Round() (b) Sum() (c) Count () (d) Avg ()

20. Pick the correct username used for logging in database (sql with Python).
(a) root (b) local (c) directory (d) host

21. Aggregate functions can be used in the select list or the _____ clause of a select statement. They cannot be used in a _____ clause.
(a) Where, having (b) Having, where (c) Group by, having (d) Group by, where

22. Select correct SQL query from below to find the temperature in increasing order of all cites.
(a) SELECT city FROM weather ORDER BY temperature;
(b) SELECT city, temperature FROM weather;
(c) SELECT city, temperature FROM weather ORDER BY temperature;
(d) SELECT city, temperature FROM weather ORDER BY city;

23. In SQL, which command is used to SELECT only one copy of each set of duplicable rows
(a) SELECT DISTINCT (b) SELECT UNIQUE
(c) SELECT DIFFERENT (d) All of the above

24. Which of the following is a SQL aggregate function?

(a) LEFT (b) AVG (c) JOIN (d) LEN

25. The command used for modifying the records is:

(a) update (b) add (c) updateall (d) none of the above

26. An attribute in a relation is foreign key if it is the _____key in any other relation.

(a) Candidate (b) Primary (c) Super (d) Sub

27. Which of the following sublanguages of SQL is used to query information from the data base and to insert tuples into, delete tuples from, and modify tuples in the database?

(a) DML (Data Manipulation Language)
(b) DDL (Data Definition Language)
(c) Query
(d) Relational Schema

28. Which operator performs pattern matching?

(a) BETWEEN operator (b) LIKE operator
(c) EXISTS operator (d) None of these

29. Which of the following is not a legal method for fetching records from database from within Python?

(a) fetchone() (b) fetchtwo() (c) fetchall() (d) fetchmany()

30. By default, ORDER BY clause lists the results in _____ order.

(a) Descending (b) Any (c) Same (d) Ascending

31. Which of the following attributes can be considered as a choice for primary key?

(a)Name (b)Street (c) Roll No (d) Subject

32. In the given query which keyword has to be inserted?

INSERT INTO employee_____(1002, “Kausar”, 2000);

(a) Table (b) Values (c) Relation (d) Field

33. What SQL statement do we use to display the record of all students whose last name contains 5 letters ending with “A”?

(a) SELECT * FROM STUDENTS WHERE LNAME LIKE ‘_ _ _ _A’;
(b) SELECT * FROM STUDENTS WHERE LNAME LIKE ‘ _ _ _ _ _’;
(c) SELECT * FROM STUDENTS WHERE LNAME LIKE ‘ ????A’;
(d) SELECT * FROM STUDENTS WHERE LNAME LIKE ‘*A’;

34. Consider the table with structure as:

Student (ID, name, dept name, tot_cred)
In the above table, which attribute will form the primary key?

(a)Name (b) Dept (c) total_credits (d) ID

35. Which of the following will you use in the following query to display the unique values of the column dept_name?

SELECT _____ dept_name FROM Company;

(a)All (b) From (c) Distinct (d) Name

36. Consider the following query:

SELECT name, instructor name, course_____id
FROM instructor;

To display the field heading course with a different heading as id, which keyword must be used here to rename the field name?

(a)From (b) Rename (c) As (d) Join

37. With SQL, how do you select all the records from a table named "Students" where the value of the column "FirstName" ends with an "a"?

(a) SELECT * FROM Students WHERE FirstName ='a'
(b) SELECT * FROM Students WHERE FirstName LIKE 'a%'
(c) SELECT * FROM Students WHERE FirstName LIKE '%a'
(d) SELECT * FROM Students WHERE FirstName ='%a%'

38. The HAVING clause does which of the following?

(a) Acts EXACTLY like WHERE clause
(b) Acts like a WHERE clause but is used for columns rather than groups.
(c) Acts like a WHERE clause but is used form groups rather than rows.
(d) Acts like a WHERE clause but is used for rows rather than columns.

39. Which clause is used with "aggregate functions"?

(a) GROUP BY (b) SELECT (c) WHERE (d) Both (a) and (b)

40. To open a connector to Mysql database, which statement is used to connect with mysql?

(a) Connector (b) Connect (c) password (d) username

41. If column "Marks" contains the data set {25, 35, 25, 35, 38}, what will be the output after the execution of the given query?

SELECT MARKS (DISTINCT) FROM STUDENTS;

(a) 25. 35. 25. 35. 38 (b) 25, 25, 35, 35 (c) 25, 35, 38 (d) 25, 25, 35, 35

42. Which connector is used for linking the database with Python code?

(a) MySQL-connector (b) YesSQL: connector
(c) PostSQL: connector (d) None of the above

43. If column "Salary" contains the data set {1000, 15000, 25000, 10000, 15000}, what will be the output after the execution of the given query?

SELECT SUM(DISTINCT SALARY) FROM EMPLOYEE;

(a)75000 (b) 25000 (c) 10000 (d) 50000

44. SQL applies conditions on the groups through _____ clause after groups have been formed,

(a) Group by (b) With (c) Where (d) Having

45. To execute all the rows from the result set, which method is used?

(a) fetchall (b) fetchone (c) fetchmany (d) none of the above

46. What is the meaning of "HAVING" clause is SELECT query?
(a) To filter out the summary groups (b) To filter out the column groups
(c) To filter out the row and column values (d) None of the mentioned

47. Which of the following queries contains an error?
(a) Select * from emp where empid = 10003;
(b) Select empid from emp where empid=10006;
(c) Select empid from emp;
(d) Select empid where empid=1009 and lastname='GUPTA';

48. Which operator tests column for the absence of data (i.e., NULL value) ?
(a) EXISTS operator (b) NOT operator
(c) IS operator (d) None of these

49. Consider the following query:
SELECT name FROM class WHERE subject_____NULL;
Which comparison operator may be used to fill the blank space in above query?
(a) = (b) LIKE (c) IS/IS Not (d) if

50. Which SQL function is used to count the number of rows in a SQL query?
(a) COUNT () (b) NUMBER () (c) SUM () (d) COUNT (*)

51. With SQL, how can you return the number of not null record in the Project field of "Students" table?
(a) SELECT COUNT (Project) FROM Students
(b) SELECT COLUMNS (Project) FROM Students
(c) SELECT COLUMNS (*) FROM Students
(d) SELECT COUNT (*) FROM Students

52. Which of the following is not an aggregate function?
(a) Avg (b) Sum (c) With (d) Min

53. All aggregate functions except _____ ignore null values in their input collection.
(a) Count (attribute) (b) Count (*) (c) Avg (d) Sum

54. Which of the following group functions ignore NULL values?
(a) MAX (b) COUNT (c) SUM (d) All of the above

55. What will be the order of the data being sorted after the execution of given query
SELECT * FROM STUDENT ORDER BY ROLL_NO;
(a)Custom Sort (b) Descending (c) Ascending (d) None of the above

56. Where and Having clauses can be used interchangeably in SELECT queries?
(a) True (b) False (c) Only in views (d) With order by

57. A_____ is property of the entire relation, which ensures through its value that each tuple is unique in a relation.

(a) Rows (b) Key (c) Attribute (d) fields

58. The operation whose result contains all pairs of tuples from the two relations, regardless of whether their attribute values match.

(a) Join (b) Cartesian product (c) Intersection (d) Set difference

59. Consider following SQL statement. What type of statement is this?
CREATE TABLE employee (name VARCHAR, id INTEGER)

(a) DML (b) DDL (c) DCL (d) Integrity constraint

60. The pattern '- - - ' matches any string of _____ three character. '- - - %' matches any string of ____ three characters.

(a) Atleast, Exactly (b) Exactly, Atleast (c) Atleast, All (d) All, Exactly

VERY SHORT ANSWER QUESTIONS (1 MARKS EACH)

Q1. Name the command/clause which is used to display the records in ascending or descending order.

Q2. Give example of any two DML commands.

Q3. What is the purpose of SQL?

Q4. What is primary key?

Q5. Which command is used to display a list of already existing tables?

Q6. Which command is used to change the structure of table?

Q7. Which command is used to change the data of the table?

Q8. Which command is used to delete data of the table?

Q9. Which command delete the structure of table?

Q10. Identify the DDL and DML commands from the following:

Create, Delete

Q11. Which clause is used with aggregate functions? (Group by/ Where)

Q12. What do you mean by candidate key?

Q13. Correct the error in the following query.

Select * from RECORD where Rname = %math%;

Q14. What is max () function in SQL?

Q15. What do you mean by degree and cardinality of table?

Q16. Expand DDL and DML

Q17. Which command is used to increase the salary of workers in table salary? (Update / Alter)

Q18. Name the command used to see the structure of table.

Q19. Which aggregate function is used to find sum of column in a table?

Q20. What is the difference between having and where clause?

Q21. Name an aggregate function in SQL which return the average of numeric values.

Q22. What is the use of “like” in SQL?

Q23. Correct the following statement:

Delete table data;

Q24. What do you mean by aggregate function?

Q25. Write two wild card characters which are used with like operator?

Q26. Duplication of record is called _____

Q27. What is the difference between char and varchar?

==========*==========*==========

Fill in the blanks

1. SQL stands for _____ Query Language.
2. A connectivity package such as _____ must be imported before writing database connectivity Python code.
3. The SQL keyword_____ is used to specify the table(s) that contains the data to be retrieved.
4. To remove duplicate rows from the result of a query, specify the SQL qualifier_____ in select list.
5. To obtain all columns, use a(n) _____ instead of listing all the column names in the select list.
6. The SQL _____ clause contains the condition that specifies which rows are to the selected.
7. To sort the rows of the result table, the _____ _____ clause is specified.
8. Columns can be sorted in descending sequence by using the SQL keyword _____
9. When two conditions must both be true for the rows to be selected, the conditions are separated by the SQL keyword _____
10. To refer to a set of values needed for a condition, we can use the SQL operation _____
11. To exclude one or more values (a list of values) using a condition, the SQL keyword _____ _____ should be used.
12. The SQL keyword _____ is used in SQL expressions to select based on patterns
13. The SQL built-in function _____ totals values in numeric columns.
14. The SQL built-in function _____ obtains the largest value in a numeric column.

15. The SQL built-in function _____ obtains the smallest value in a numeric column.
16. The SQL built-in function _____ computes the number of rows in a table.
17. The SELECT clause _____ is used to collect those rows that have the same value in a specified column.
18. _____ method returns the result set in the form of tuples containing the records or rows returned by the sql table.
19. A session between the application program and the database is called_____
20. A _____ query is used to check if data has been added to the table or not.
21. The _____ function works with data of multiple rows at a time and returns aggregated value.
22. The _____ clause lets you arrange the result set in the order of single column, multiple column and custom sort order too.
23. To specify filtering condition for groups, the _____ clause is used in MYSQL.
24. By default, the ORDER BY clauses sorts the result set in the _____ order.
25. To sort the result set in descending order, _____ keyword is used with ORDER BY.

True/False Questions

1. The condition in a WHERE clause in a SELECT query can refer to only one value
2. SQL provides the AS keyword, which can be used to assign meaningful column names to the results of queries using the SQL built-in functions.
3. The rows of the result relation produced by a SELECT statement can be sorted but only by one column.
4. SQL is a programming language.
5. SELECT DISTINCT is used if a user wishes to see duplicate columns in a query.
6. The HAVING clause acts like a WHERE clause, but it identifies groups that meet a criterion, rather than rows.
7. The qualifier DISTINCT must be used in an SQL statement when we want to Eliminate duplicate rows.
8. DISTINCT and its counterpart, ALL, can be used more than once in a SELECT statement.
9. DISTINCT and its counterpart, ALL, can be used together on single field in a SELECT statement.
10. SUM, AVG, MIN and MAX can only be used with numeric columns.
11. The SQL statement: SELECT salary + Comm AS Total FROM Emp; adds two fields salary and comm from each row together and lists the results in a column named Total.
12. ORDER BY can be combined with the SELECT statement.
13. Data manipulation language (DML) commands are used to define a database, including creating, altering, and dropping tables and establishing constraints.
14. The keyword LIKE can be used in a WHERE clause to refer to a range of values.
15. The SQL keyword GROUP BY instructs the DBMS to group together those rows that have the same value in a column.
16. The keyword BETWEEN can be used in a WHERE clause to refer to a range of values.
17. Read operation on any table means to fetch some useful information from the table.
18. Use fetchall() method to retrieve only one value from a database table.

19. Row count is a read-only attribute.
20. To disconnect database connection, use connect () method.
21. Update statement is used to insert data into the table.
22. The ORDER BY clause combines all those records that have identical values in a particular field or a group of fields.
23. The WHERE clause is used to specify filtering conditions for groups.
24. DISTINCT option causes a group function to consider only the unique values of the argument expression.
25. By default, ORDER BY clause sorts the result set in descending order.
26. COUNT () function ignores duplicate and null values while counting the records.
27. The return value of MAX () function is a numeric value.
28. Multiple row function is also known as scalar function
29. SUM () function is used to count the total number of records in a table.
30. Argument type of AVG () function can be numeric or string data type.

-------ANSWER -------
OBJECTIVE TYPE QUESTIONS /MULTIPLE CHOICE QUESTIONS

1	(a)Structure Query Language	21	(b)Having, where	41	(c)25,35,38
2	(d)Data Manipulation Language	22	(d)SELECT city, temperature FROM weather ORDER BY city;	42	(a)MySQL-connector
3	(a)Where	23	(a)SELECT DISTINCT	43	(d)50000
4	(a) MAX()	24	(b)AVG	44	(d)Having
5	(c) Fixed, variable	25	(a)update	45	(a)fetchall
6	(b)Tuple	26	(b)Primary	46	(a)To filter out the summary groups
7	(d)mycon.close	27	(a)DML (Data Manipulation Language)	47	(d)Select empid where empid=1009 and lastname='GUPTA';
8	(a)Tables	28	(b)LIKE operator	48	(c)IS operator
9	(c)Data Definition Language	29	(b)fetchtwo()	49	(c)IS/IS Not
10	(c)Tuple	30	(d)Ascending	50	(d)COUNT (*)
11	(d)fetchone	31	(c)Roll No	51	(a)SELECT COUNT (Project) FROM Students

12	(a)localhost	32	(b)Values	52	(c)With
13	(c)Relations	33	(a)SELECT * FROM STUDENTS WHERE LNAME LIKE'-_ _ _ _ A';	53	(b)Count(*)
14	(b)Data Manipulation Language (DML)	34	(d)ID	54	(d)All of the above
15	(a)Attribute	35	(c)Distinct	55	(c)Ascending
16	(a)Amit, Sumit	36	(c)As	56	(b)False
17	(d)%	37	(c)SELECT * FROM Students WHERE FirstName LIKE '%a'	57	(b)Key
18	(a)DML	38	(c)Acts like a WHERE clause but is used from groups rather than rows	58	(b)Cartesian product
19	(a)Round()	39	(a)GROUP BY	59	(b)DDL
20	(a)Root	40	(b)Connect	60	(b)Exactly, Atleast

-------ANSWER -------

VERY SHORT ANSWER QUESTIONS (1 MARKS EACH)

Q.N.	ANS	Q.N.	ANS	Q.N.	ANS
1	**order by clause**	2	Insert , Delete	3	SQL is structured query language. It is a standard language of all the RDBMS
4	A field which is unique for each and every record in table is called primary key.	5	show tables;	6	Alter
7	Update	8	Delete	9	Drop
10	Create —DDL and Delete —-DML	11	Group by	12	Those fields which can act as primary key is called candidate key.
13	Select * from RECORD where Rname like %math%;	14	Ans. It returns the largest value from a particular column.	15	Number of columns in table is called degree. Number of rows in a table is called cardinality.

16	Ans. DDL – Data Definition Language, DML – Data Manipulation Language.	17	Update	18	Desc
19	sum()	20	Having clause can be used with group by clause while where clause can be used without group by clause.	21	avg()
22	"Like" operator is used to match a particular pattern in a particular column in SQL.	23	Delete from data	24	A function which perform calculation on multiple values and return single value.
25	% and underscore(_)	26	Redundancy	27	Char is fixed length data type and varchar is variable length data type.

-------ANSWER -------

Fill in the blanks

1	Structured	11	NOT IN	21	Group/row/ aggregation function
2	Mysql.connector	12	LIKE	22	ORDER BY
3	FROM	13	SUM	23	Having
4	DISTINCT	14	MAX	24	Ascending
5	Asterisk (*)	15	MIN	25	DESC
6	WHERE	16	COUNT		
7	ORDER BY	17	GROUP BY		
8	DESC	18	Fetchall()		
9	AND	19	Connection		
10	IN	20	Select		

-------ANSWER -------

True and False

1	**F**	**11**	**T**	**21**	**F**
2	**T**	**12**	**T**	**22**	**F**
3	**F**	**13**	**F**	**23**	**F**
4	**F**	**14**	**F**	**24**	**T**
5	**F**	**15**	**T**	**25**	**F**
6	**T**	**16**	**T**	**26**	**T**
7	**T**	**17**	**T**	**27**	**T**
8	**F**	**18**	**F**	**28**	**F**
9	**F**	**19**	**T**	**29**	**F**
10	**T**	**20**	**F**	**30**	**F**

SHORT ANSWER QUESTIONS (2 MARKS EACH)

Q1. What is the difference between cardinality and degree?.

Q.2 Differentiate between WHERE and HAVING clause.

Q.3 Define Primary Key of a relation in SQL. Give an Example using a dummy table.

Q.4 Consider the following Python code is written to access the record of CODE passed to function: Complete the missing statements:

```
def Search(eno):
#Assume basic setup import, connection and cursor is created
        query="select * from emp where empno=_____".format(eno)
        mycursor.execute(query)
        results = mycursor._____
        print(results)
```

Q. 5 Differentiate between DDL and DML with one Example each.

Q.6 Answer the following:

i) Name the package for connecting Python with MySQL database.

ii) What is the purpose of cursor object?

Q.7 What do you mean by domain of an attribute in DBMS? Explain with an example.

Q.8 Differentiate between fetchone() and fetchmany() methods with suitable examples.

Q.9 What is Constraint ? Give example of any two constraints.

Q.10 Write the steps to perform an Insert query in database connectivity application.

Table ‘student’ values are rollno, name, age (10,’Ashok’,26)

Q.11 Define Candidate Key and Alternate Key with suitable examples from a table containing some meaningful data.

Q.12 Define RDBMS. Name any two RDBMS software.

Q.13 What is the purpose of the following clauses in a select statement?

i) ORDER BY ii) HAVING

Q.14 Write SQL queries for the following:

i. Create the table Product with appropriate data types and constraints.

ii. Identify the primary key in Product.

Q.15 Write any two differences between Single_row functions and Aggregate functions.

ANSWERS-(SHORT ANSWER QUESTIONS (2 MARKS EACH)

ANS .1 **Degree** - The number of attributes or columns in a relation is called the Degree of the relation.
Cardinality - The number of tuples/ rows in a relation is called the Cardinality of the relation.

ANS.2 WHERE clause is used to select particular rows that satisfy a condition whereas HAVING clause is used in connection with the aggregate function, GROUP BY clause.

For ex. – select * from student where marks > 75;

This statement shall display the records for all the students who have scored more than 75 marks. On the contrary, the statement – select * from student group by stream having marks > 75; shall display the records of all the students grouped together on the basis of stream but only for those students who have scored marks more than 75.

Ans.3 Primary Key- one or more attribute of a relation used to uniquely identify each and every tuple in the relation. For Example : In the below Table Student, RollNo can be the Primary Key

RollNo	Name	Marks
1	Pratham	75
2	Srishti	80

Ans. 4 { } and fetchone()

Ans 5 DDL- Data definition language. Consists of commands used to modify the metadata of a table. For Example- create table, alter table, drop table

DML-Data manipulation language. Consist of commands used to modify the data of a table.

For Example- insert, delete, update

Ans 6 .i) import mysql.connector

ii) It is the object that helps to execute the SQL queries and facilitate row by row processing of records in the resultset.

Ans 7 Domain of an attribute is the set of values from which a value may come in a column. E.g. Domain of section field may be (A,B,C,D).

Ans 8 fetchone() is used to retrieve one record at a time but fetchmany(n) will fetch n records at a time from the table in the form of a tuple.

Ans 9 .Constraints are the checking condition which we apply on table to ensure the correctness of data . Example primary key, not null, default, unique etc

Ans 10 import mysql.connector as mydb

```
conn= mydb.connect(host="localhost", user="root", passwd="1234")
cur=conn.cursor()
cur.execute("INSERT INTO student values(10,'Ashok',26);")
cur.commit()
```

Ans.11 A table may have more than one such attribute/group of attributes that identifies a tuple uniquely, all such attribute(s) are known as Candidate Keys. All the candidate key except primary key are called Alternate key.

Table: Employee (**empno**, aadhar_no, voter_id, ename, deptno, sal, city)

In the above table Employee, empno,aadhar_no, voter_id all are candidate key If we define empno as primary key then remaining candidate keys will be alternate key.

Ans.12 RDBMS stands for Relational Database Management System. It is a program that offers commands to create, update, and manage the data with multiple tables. Examples of RDBMS are

1. MySQL
2. Oracle
3. Microsoft SQL Server.

Ans.13

i) Order By : This clause is used to arrange the records in ascending or descending order. for example Select * from book order by price;

ii) Having : HAVING Clause in SQL is used to specify conditions on the rows with GROUP BY clause. for example Select sum(price) from book group by (subject) having price > 100;

Ans 14.

i) Create table product(Pcode varchar(3) not null Primary key , PName Varchar(20), UPrice int(4), Manufacture Varchar(20));

ii) Pcode is primary key.

Ans.15

Single row Functions	**Multiple row functions / Aggregate Functions**
It operates on a single row at a time.	It operates on multiple rows.
It returns one result per row	It returns one result for multiple rows.
It can be used in Select, Where, and Order by clause.	It can be used in the select clause only.
Math, String and Date functions are examples of single row functions.	Max(), Min(), Avg(), Sum(), Count() and Count(*) are examples of multiple row functions.

CASE STUDY BASED QUESTIONS/SQL-OUTPUT QUESTIONS (3 MARKS)

Q1. Consider the following tables FACULTY and COURSES and give outputs for SQL queries (i) to (iii)

FACULTY

F_ID	Fname	Lname	Hire_date	Salary
102	Amit	Mishra	12-10-1998	12000
103	Nitin	Vyas	24-12-1994	8000
104	Rakshit	Soni	18-5-2001	14000
105	Rashmi	Malhotra	11-9-2004	11000
106	Sulekha	Srivastava	5-6-2006	10000

COURSES

C_ID	F_ID	Cname	Fees
C21	102	Grid Computing	40000
C22	106	System Design	16000
C23	104	Computer Security	8000
C24	106	Human Biology	15000
C25	102	Computer Network	20000
C26	105	Visual Basic	6000

i) Select COUNT(DISTINCT F_ID) from COURSES;
ii) Select MIN(Salary) from FACULTY,COURSES where COURSES.F_ID = FACULTY.F_ID;
iii) Select avg(Salary) from FACULTY where Fname like 'R%'

Q.2Write output for (i) & (iii) basedon a table COMPANY and CUSTOMER.

COMPANY

CID	NAME	CITY	PRODUCTNAME
111	SONY	DELHI	TV
222	NOKIA	MUMBAI	MOBILE
333	ONIDA	DELHI	TV
444	SONY	MUMBAI	MOBILE
555	BLACKBERRY	MADRAS	MOBILE
666	DELL	DELHI	LAPTOP

CUSTOMER

CUSTID	NAME	PRICE	QTY	CID
101	Rohan Sharma	70000	20	222
102	Deepak Kumar	50000	10	666
103	Mohan Kumar	30000	5	111

104	Sahil Bansal	35000	3	333
105	Neha Soni	25000	7	444
106	Sonal Aggarwal	20000	5	333
107	Arjun Singh	50000	15	666

(i) SELECT COUNT(*) ,CITY FROM COMPANY GROUP BY CITY;
(ii) SELECT MIN(PRICE), MAX(PRICE) FROM CUSTOMER WHERE QTY>10 ;
(iii) SELECT AVG(QTY) FROM CUSTOMER WHERE NAME LIKE "%r%;

Q.3 Write output for (i) to (iii) based on the tables 'Watches' and 'Sale' given below.

Table: Watches

Watchid	Watch_Name	Price	Type	Qty_Store
W001	HighTime	10000	Unisex	100
W002	LifeTime	15000	Ladies	150
W003	Wave	20000	Gents	200
W004	HighFashion	7000	Unisex	250
W005	GoldenTime	25000	Gents	100

Table: Sale

Watchid	Qty_Sold	Quarter
W001	10	1
W003	5	1
W002	20	2
W003	10	2
W001	15	3
W002	20	3
W005	10	3
W003	15	4

i. select quarter, sum(qty_sold) from sale group by quarter;
ii. select watch_name,price,type from watches w, sale s wherew.watchid!=s.watchid;
iii. select watch_name, qty_store, sum(qty_sold), qty_store-sum(qty_sold) "Stock" from watches

w, sale s where w.watchid=s.watchid group by s.watchid;

Q.4 Write the output for SQL queries (i) to (iii), which are based on the table: **Employees**

Employees

Empid	Firstname	Lastname	Designation	City	Salary
010	Ravi	Kumar	Manager	GZB	75000
105	Harry	Waltor	Manager	GZB	65000
152	Sam	Tones	Director	Paris	80000

215	Sarah	Ackerman	Manager	Upton	75000
244	Manila	Sengupta	Clerk	New Delhi	50000
300	Robert	Samuel	Clerk	Washington	45000
335	Ritu	Tondon	Clerk	GZB	40000
400	Rachel	Lee	Salesman	New York	32000
441	Peter	Thompson	Salesman	Paris	28000

(i) Select Designation , count(*) from Employees Group by Designation Having count(*)>=3;

(ii) Select Max (salary), Min(Salary) from Employees Where City in ('GZB', 'Paris');

(iii) Select Firstname, Lastname from Employees where Firstname like 'R%';

Q.5 Write output for queries (i) to (iii), which are based on the table:

Books.

Book_id	Book_name	Author_name	Publisher	Price	Qty
C0001	Fast Cook	Lata Kapoor	EPB	355	5
F0001	The Tears	William hopkin	NIL	650	20
T0001	My First Py	Brain& Brooke	EPB	350	10
T0002	Brain works	A.W. Rossaine	TDH	450	15
F0002	Thunderbolts	Anna Roberts	NIL	750	5

i. Select Count(Publisher) from Books;

ii. Select Max(Price) from books where qty >=15;

iii. Select count(distinct publishers) from books where Price>=400;

ANSWERS

ANS .1 (i) 4 (ii) 6000 (iii) 12500

Ans.2

(i) Count(*) CITY
3 DELHI
2 MUMBAI
1 MADRAS

(ii) MIN (PRICE) -50000
MAX (PRICE) -7000

(iii) AVG (QTY)
11

Ans.3

(i) Quarter sum(qty_sold)
1 15
2 30
3 45

4 15

(ii)

watch_name	price	type
HighFashion	7000	Unisex

(iii)

watch_name	qty_store	qty_sold	Stock
HighTime	100	25	75
LifeTime	150	40	110
Wave	200	30	170
GoldenTime	100	10	90

Ans4.

(i) Manager 3
Clerk 3

(ii) 80000 28000

(iii) Ravi Kumar
Robert Samuel
Ritu Tondon
Rachel Lee

Ans .5

(i) 3 (ii)650 (iii)TDH

CASE STUDY BASED QUESTIONS (5 MARKS EACH)

1. Write SQL commands for (a) to (e) on the basis of table GRADUATE.

Table: GRADUATE

S.NO.	NAME	STIPEND	SUBJECT	AVERAGE	DIV
1	KARAN	400	PHYSICS	68	1
2	DIVAKAR	450	COMPUTER SC	68	1
3	DIVYA	300	CHEMISTRY	62	2
4	ARUN	350	PHYSICS	63	1
5	SABINA	500	MATHEMATICS	70	1
6	JOHN	400	CHEMISTRY	55	2
7	ROBERT	250	PHYSICS	64	1
8	RUBINA	450	MATHEMATICS	68	1
9	VIKAS	500	COMPUTER SC	62	1
10.	MOHAN	300	MATHEMATICS	57	2

(a) List the names of those students who have obtained DIV 1 sorted by NAME.

(b) Display a report, listing NAME, STIPEND, SUBJECT and amount of stipend received in a year assuming that the STIPEND is paid every month.

(c) To count the number of students who are either PHYSICS or COMPUTER SC graduates.

(d) To insert a new row in the GRADUATE table:
11, "KAJOL", 300, "COMPUTER SC", 75, 1

(e) Display Name of the students whose average is more than 65.

Q.2 Write SQL commands for (a) to (e) on the basis of table CLUB.

Table: CLUB

COACH ID	COACH NAME	AGE	SPORTS	DATEOFAPP	PAY	SEX
1.	KUKREJA	35	KARATE	27/03/1997	1000	M
2.	RAVINA	34	KARATE	20/01/1998	1200	F
3.	KARAN	34	SQUASH	19/02/1998	2000	M
4.	TARUN	33	BASKETBALL	01/01/1998	1500	M
5.	ZUBIN	36	SWIMMING	12/01/1998	750	M
6.	KETAKI	36	SWIMMING	24/02/1998	800	F
7.	ANKITA	39	SQUASH	20/02/1998	2200	F
8.	ZAREEN	37	KARATE	20/02/1998	1100	F
9.	KUSH	41	SWIMMING	13/01/1998	900	M
10.	SHAILYA	37	BASKETBALL	19/02/1998	1700	M

(a) To show all information about the swimming coaches in the club.

(b) To list names of all coaches with their date of appointment (DATOFAPP) in descending order.

(c) To display a report, showing coachname, pay, age and bonus (15% of pay) for all the coaches.

(d) To insert in a new row in the **CLUB** table with the following data:
11, "PRAKASH", 37, "SQUASH", {25/02/98}, 2500, "M"

(e) Display Coachname ,Sports,Pay from the table .

3. Write SQL command for (a) to (e) on the basis of tables INTERIORS and NEWONES.

Table: INTERIORS

NO	ITEMNAME	TYPE	DATEOFSTOCK	PRICE	DISCOUNT
1	Red rose	Double bed	23/02/02	32000	15
2	Soft touch	Baby cot	20/01/02	9000	10
3	Jerry's home	Baby cot	19/02/02	8500	10
4	Rough wood	Office Table	01/01/02	20000	20
5	Comfort zone	Double bed	12/01/02	15000	20
6	Jerry look	Baby cot	24/02/02	7000	19
7	Lion king	Office Table	20/02/02	16000	20
8	Royal tiger	Sofa	22/02/02	30000	25
9	Park sitting	Sofa	13/12/01	9000	15

10	Dine Paradise	Dining Table	19/02/02	11000	15

Table: NEWONES

NO	ITEMNAME	TYPE	DATEOFSTOCKS	PRICE	DISCOUNT
11	White wood	Double bed	23/03/03	20000	20
12	James 007	Sofa	20/02/03	15000	15
13	Tom look	Baby cot	21/02/13	7000	10

(a) To show all information about the sofas from the **INTERIORS** table.

(b) To list the **ITEMNAME** which are priced at more than 10,000 from the **INTERIORS** table.

(c) To list **ITEMNAME** and TYPE of those items, in which **DATEOFSTOCK** is before

22/01/02 from the **INTERIERS** table in the descending order of **ITEMNAME**.

(d)To display **ITEMNAME** and **DATEOFSTOCK** of those items, in which the discount

Percentage is more than 15 from **INTERIORS** table.

(e)To count the number of items, whose type is "**Double Bed**" from **INTERIOR** table.

4. Write SQL command for (a) to (e) on the bases of tables FURNITURE **AND** ARRIVALS.

Table: FURNITURE

NO.	ITEMNAME	TYPE	DATEOFSTOCK	PRICE	DISCOUNT
1	White lotus	Double Bed	23/02/02	30000	25
2	Pink feather	Baby cot	20//01/02	7000	20
3	Dolphin	Baby cot	19/02/02	9500	20
4	Decent	Office Table	01/01/02	25000	30
5	Comfort zone	Double Bed	12/01/02	25000	25
6	Donald	Baby cot	24/02/02	6500	15
7	Royal Finish	Office Table	20/02/02	18000	30
8	Royal tiger	Sofa	22/02/02	31000	30
9	Econo sitting	Sofa	13/12/01	9500	25
10	Eating paradise	Dining Table	19/02/02	11500	25

Table: ARRIVALS

NO.	ITEMNAME	TYPE	DATEOFSTOCK	PRICE	DISCOUNT
11	Wood Comfort	Double Bed	23/03/03	25000	25
12	Old Fox	Sofa	20/02/03	17000	20
13	Micky	Baby cot	21/02/02	7500	15

(a) To show all information about the baby cots from the FURNITURE table.
(b) To list the ITEMNAME which are priced at more than 15000 from the FURNITURE table.
(c) To list ITEMNAME AND TYPE of those items, in which DATEOFSTOCK is before 22/01/02from the FURNITURE table in descending order of ITEMNAME.
(d) To display ITEMNAME and DATEOFSTOCK of those items, in which the DISCOUNTpercentage is more than 25 from FURNITURE table.
(e) To insert a new row in the ARRIVALS table with the following data:14, "Velvet touch", Double bed", {25/03/03}, 25000, 30

5. Write SQL commands for (a) to (e) on the basis of Teacher relation given below:

Relation Teacher

No.	Name	Age	Department	Date of join	Salary	Sex
1.	Jugal	34	Computer	10/01/97	12000	M
2.	Sharmila	31	History	24/03/98	20000	F
3.	Sandeep	32	Maths	12/12/96	30000	M
4.	Sangeeta	35	History	01/07/99	40000	F
5.	Rakesh	42	Maths	05/09/97	25000	M
6.	Shyam	50	History	27/06/98	30000	M
7.	Shiv Om	44	Computer	25/02/97	21000	M
8.	Shalakha	33	Maths	31/07/97	20000	F

(a) To show all information about the teacher of history department
(b) To list the names of female teacher who are in Hindi department
(c) To list names of all teachers with their date of joining in ascending order.
(d) To display teacher's Name, Salary, Age for male teacher only
(e) To count the number of teachers with Age>23.

6. Answer the questions (i) and (v) on the basis of the following tables SHOP and ACCESSORIES.

TABLE SHOP

ID	SName	Area
S0001	ABC Computeronics	CP
S0002	All Infotech Media	GK II
S0003	Tech Shoppe	CP
S0004	Greeks Techno Soft	Nehru Place
S0005	Hitech Tech Store	Nehru Place

TABLE ACCESSORIES

No	Name	Price	ID
A01	Mother Board 12000	S01	
A02	Hard Disk 5000	S01	
A03	Keyboard	500	S02
A04	Mouse	300	S01
A05	Mother Board 13000	S02	
A06	Keyboard 400	S03	
A07	LCD	6000	S04
T08	LCD	5500	S05
T09	Mouse	350	S05
T10	Hard Disk	4500	S03

Write the SQL queries:

(i) To display Name and Price of all the accessories in ascending order of their Price.

(ii) To display Id and SName of all Shop in Nehru Place.

(iii) To display Minimum and Maximum Price of each Name of accessories.

(iv) To display Name, Price of all accessories and their respective SName where they are available.

(v) To display all Sname in descending order.

7. Consider the following table GARMENT and FABRIC, Write SQL commands for the statements (i) to (v)

TABLE GARMENT

GCODE	DESCRIPTION	PRICE	FCODE	READYDATE
10023	PENCIL SKIRT	1150	F 03	19-DEC-08
10001	FORMAL SHIRT	1250	F 01	12-JAN-08

10012	INFORMAL SHIRT	1550	F 02	06-JUN-08
10024	BABY TOP	750	F 03	07-APR-07
10090	TULIP SKIRT	850	F 02	31-MAR-07
10019	EVENING GOWN	850	F 03	06-JUN-08
10009	INFORMAL PANT	1500	F 02	20-OCT-08
10007	FORMAL PANT	1350	F 01	09-MAR-08
10020	FROCK	850	F 04	09-SEP-07
10089	SLACKS	750	F 03	20-OCT-08

TABLE FABRIC

FCODE	TYPE
F 04	POLYSTER
F 02	COTTON
F 03	SILK
F01	TERELENE

(i) To display GCODE and DESCRIPTION of each GARMENT in descending order of GCODE.

(ii) To display the details of all the GARMENT, which have READYDATE in between 08-DEC-07 and16-JUN-08 (inclusive if both the dates).

(iii) To display the average PRICE of all the GARMENT, which are made up of fabric with FCODE asF03.

(iv) To display fabric wise highest and lowest price of GARMENT from GARMENT table. (DisplayFCODE of each GARMENT along with highest and lowest Price).

(v) To display Gcode whose Price is more than 1000.

ANSWERS:

CASE STUDY BASED QUESTIONS

1.(a) Select Name From GRADUATE Where DIV = 1 Order by Name;

(b) Select Name, stipend, subject, stepend *12 From GRADUATE

(c) Select count (*) From GRADUATE
Where subject IN (“PHYSICS”, “COMPUTER SC”);

(d) Insert into GRADUATE Values (11, “KAJOL”, 300, “COMPUTER SC”, 75,1);

(e) Select name from Graduate where average>65

2. (a) Select * From CLUB Where sports = “SWIMMING”;

(b) Select COACHNAME From CLUB order by DATOFAPP desc

(c) Select coachname, pay, age, 0.15 * pay From CLUB;

(d) Insert into CLUB Values (11, “PRAKASH”, 37, “SQUASH”, {25/02/98], 2500, “M”);

(e) Select Coachname ,Sports,Pay from Club .

3 (a) Select * From INTERIORS Where TYPE = “Sofa”;
(b) Select ITEMNAME From INTERIORS Where PRICE >
(c) 10000; Select ITEMNAME, TYPE From INTERIORS
Where DATEOFSTOCK < {22/01/02} Order by ITEMNAME desc;
(d) Select ITEMNAME, DATEOFSTOCK From INTERIORS Where DISCOUNT > 15;
(e)Select Count (*) From INFERIORS Where TYPE = “Double Bed”;

4 (a) Select * From FURNITURE Where TYPE = “Baby cot”;
(b) Select ITEMNAME From FURNITURE Where PRICE >
(c) 15000; Select ITEMNAME, TYPE From FURNITURE
Where DATEOFSTOCK < {22/01/02} Order by ITEMNAME desc;
(d) Select ITEMNAME, DATEOFSTOCK From FURNITURE Where DISCOUNT > 25.
(e) Insert Into ARRIVALS Values (14, “Velvet touch”, “Double bed”, {25/03/03}, 25000,30);

5
(a) SELECT * FROM Teacher WHERE Department = “History”;
(b) SELECT Name FROM Teacher WHERE Department = “Hindi” and Sex = “F”;
(c) SELECT Name, Dateofjoin FROM Teacher ORDER BY Dateofjoin;
d) SELECT Name, Salary, Age FROM Teacher
WHERE Age > 23 AND Sex = ‘M’;
(e) SELECT COUNT (*) FROM Teacher WHERE Age > 23;

6. (i) SELECT Name, Price FROM ACCESSORIES ORDER BY Price ASC;
(ii) SELECT ID, Price FROM SHOP
WHERE Area = ‘Nehru Place’;
(iii) SELECT MIN (Price)
“Minimum Price”, MAX
(Price) “Maximum
Price”,
Name FROM ACCESSORIES GROUP BY Name;
(iv) SELECT Name, Price, SName
FROM ACCESSORIES A, SHOP S WHERE A. ID = S. ID
(v) Select Sname from Shop order by SName desc;

7. (i) SELECT GCODE, DESCRIPTION FROM GARMENT ORDER BY GCODE DESC;
(ii) SELECT * FROM GARMENT WHERE READY DATE BETWEEN ’08-DEC-07’ AND ’16-JUN-08’;
(iii) SELECT AVG (PRICE) FROM GARMENT WHERE FCODE = ‘F03’;
(iv) SELECT FCODE, MAX (PRICE), MIN (PRICE) FROM GARMENT GROUP BY FCODE;
(v) Select Gcode from GARMENT where Price>1000;

Class: XII Session 2021-22
Computer Science (083)
BLUE PRINT

TERM – 2 Question Paper (Theory)

Class XII (TERM-II)

TOPICS	**2 Marks** Short answer questions with internal options	**3 Marks** Long answer questions with internal options	**4 Marks** Case study-based questions. with internal options	**Total**
Computational Thinking and Programming – 2	**1(2)**	**1(3)**	**-**	**2(5)**
Computer Networks	**1(2)**	**-**	**2(8)**	**3(10)**
Database Management	**5(10)**	**2(6)**	**1(4)**	**8(20)**
Total	**7(14)**	**3(9)**	**3(12)**	**13(35)**

*. Marks are given inside the bracket and number of questions outside the bracket.

Note: Question paper will be prepared following the General Instructions given below.
General Instructions:

- **The question paper is divided into 3 sections – A, B and C**
- **Section A, consists of 7 questions (1-7). Each question carries 2 marks.**
- **Section B, consists of 3 questions (8-10). Each question carries 3 marks.**
- **Section C, consists of 3 questions (11-13). Each question carries 4 marks.**
- **Internal choices have been given for question numbers 7, 8 and 12.**

==========*==========*==========*==========

KENDRIYA VIDYALAYA RAIPUR REGION
TERM-2 EXAMINATION 2021-22
SAMPLE QUESTION PAPER_1
CLASS – XII SUB: COMPUTER SCIENCE (083)

Time -90 minutes

M. Marks- 35

General Instructions: Programming language is Python.

- This question paper is divided into 3 sections A, B and C.
- Section A has 7 Questions (1-7).Each question carries 2 marks.
- Section B has 3 Questions (8-10). Each question carries 3 marks.
- Section C has 3 case-based Questions (11-13). Each question carries 4 marks.
- Internal choices have been given for question numbers 7,8 and 12.

<table>
<tr><td>Q.NO.</td><td>Section A</td><td></td></tr>
<tr><td></td><td>Each question carry 2 marks</td><td></td></tr>
<tr><td>1.</td><td>Write a function pop() which remove name from stack named "MyStack"</td><td>2</td></tr>
<tr><td>2.</td><td>i) Expand the following- HTTP , ARPANET</td><td>1</td></tr>
<tr><td></td><td>ii) What is MAC address? Give example also.</td><td>1</td></tr>
<tr><td>3</td><td>What is the difference between Primary Key and Foreign Key?.</td><td>2</td></tr>
<tr><td>4</td><td>Explain the following results retrieval methods with examples. fetchone () rowcount () .</td><td>2</td></tr>
<tr><td>5</td><td>Consider the following tables GAMES.Give outputs for SQL queries (i) to (iv).
Table: GAMES

<table>
<tr><td>GCode</td><td>GameName</td><td>Number</td><td>PrizeMoney</td><td>ScheduleDate</td></tr>
<tr><td>101</td><td>Carom Board</td><td>2</td><td>5000</td><td>23-Jan-2004</td></tr>
<tr><td>102</td><td>Badminton</td><td>2</td><td>12000</td><td>12-Dec-2003</td></tr>
<tr><td>103</td><td>Table Tennis</td><td>4</td><td>8000</td><td>14-Feb-2004</td></tr>
<tr><td>105</td><td>Chess</td><td>2</td><td>9000</td><td>01-Jan-2004</td></tr>
<tr><td>108</td><td>Lawn Tennis</td><td>4</td><td>25000</td><td>19-Mar-2004</td></tr>
</table>
(i) SELECT COUNT(DISTINCT Number) FROM GAMES;
(ii) SELECT MAX(ScheduleDate),MIN(ScheduleDate) FROM GAMES;
(iii) SELECT SUM(PrizeMoney) FROM GAMES;
(iv) SELECT * FROM GAMES WHERE PrizeMoney>12000;</td><td>2</td></tr>
<tr><td>6</td><td>i) Which keyword is used to remove duplicate records from relation.</td><td>1</td></tr>
<tr><td></td><td>ii) A table "Design" in a database has 5 columns and 2records. What is the degree and cardinality of this table?</td><td>1</td></tr>
<tr><td>7</td><td>Write SQL query to create a table ‘Inventory’ with the following structure:
<table>
<tr><td>Field</td><td>Type</td><td>Constraint</td></tr>
<tr><td>MaterialId</td><td>Integer</td><td>Primary key</td></tr>
<tr><td>Material</td><td>Varchar(50)</td><td>NOT NULL</td></tr>
<tr><td>Category</td><td>Char</td><td>DEFAULT E</td></tr>
<tr><td>DatePurchase</td><td>Date</td><td></td></tr>
</table></td><td>2</td></tr>
</table>

OR

Observe the following table and answer the part (i) and (ii) accordingly.

Pno	Name	Qty	PurchaseDate
101	Pen	102	12-12-2011
102	Pencil	201	21-02-2013
103	Eraser	90	09-08-2010
109	Sharpener	90	31-08-2012
113	Clips	900	12-12-2011

(i) Write the names of most appropriate columns, which can be considered as candidate keys.

(ii) What is the degree and cardinality of the above table?

Section – B

Each question carry 3 marks

8 Write a function in Python PUSH_IN(L), where L is a list of numbers. From this list, push all even numbers into a stack which is implemented by using another list. — 3

OR

Write a function in Python POP_OUT(Stk), where Stk is a stack implemented by a list of numbers. The function returns the value which is deleted/popped from the stack.

9 i) Why is it not allowed to give string and date type argument for Sum() and Avg() functions? — 1

ii)There is column C1 in a table T1.The following two statements:
select count(*) from T1; and select count(C1) from T1; are giving different output.What may be the possible reason? — 2

10 i) Sanghi created two tables with City as Primary Key in Table1 and Foreign key in Table2 while inserting row in Table2 Mr Sanghi is not able to enter value in the column City. What is the possible reason for it? — 1

ii)The Pincode column of table 'Post' is given below- — 2

100001
1200012
1300013
1600017
1800018

Find the output

i) SELECT Pincode from Post where Pincode LIKE " %1" ;
ii) SELECT Pincode from Post where Pincode LIKE " 0%" ;

Section – C

Each question carry 4 marks

11 (4)

TRAINER

TID	TNAME	CITY	HIREDATE	SALARY
101	SUNAINA	MUMBAI	1998-10-15	90000
102	ANAMIKA	DELHI	1994-12-24	80000
103	DEEPTI	CHANDIGARG	2001-12-21	82000
104	MEENAKSHI	DELHI	2002-12-25	78000
105	RICHA	MUMBAI	1996-01-12	95000
106	MANIPRABHA	CHENNAI	2001-12-12	69000

COURSE

CID	CNAME	FEES	STARTDATE	TID
C201	AGDCA	12000	2018-07-02	101
C202	ADCA	15000	2018-07-15	103
C203	DCA	10000	2018-10-01	102
C204	DDTP	9000	2018-09-15	104
C205	DHN	20000	2018-08-01	101
C206	O LEVEL	18000	2018-07-25	105

i)Display the Trainer Name, City & Salary in descending order of their Hiredate.

ii)To display the TNAME and CITY of Trainer who joined the Institute in the month of December 2001.

iii) To display TNAME, HIREDATE, CNAME, STARTDATE from tables TRAINER and COURSE of all those courses whose FEES is less than or equal to 10000.

iv) To display number of Trainers from each city.

12 (2)

i) Identify the type of topology on the basis of the following:
a. Since every node is directly connected to the server, a large amount of cable is needed which increases the installation cost of the network.
b. It has a single common data path connecting all the nodes.

(2)

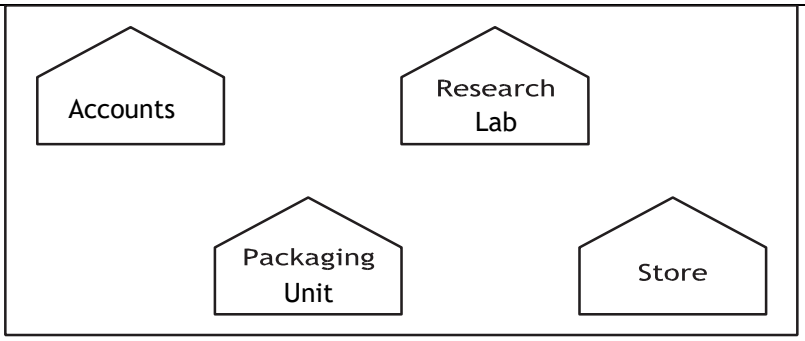
ii) Define the following:
(i)RJ-45 (ii)Ethernet

OR

What is protocol? Name 2 commonly used protocols.

13 (4)

Riana Medicos Centre has set up its new centre in Dubai. It has four buildings as shown in the diagram given below:



Distances between various buildings are as follows:

Accounts to Research Lab	55 m
Accounts to Store	150 m
Store to Packaging Unit	160 m
Packaging Unit to Research Lab	60 m
Accounts to Packaging Unit	125 m
Store to Research Lab	180 m

Building	No. of Computer
Accounts	25
Research Lab	100
Store	15
Packaging Unit	60

a network expert, provide the best possible answer for the following queries:

(i) Suggest the type of network established between the buildings.

(ii) Suggest the most suitable place (*i.e.*, building) to house the server of this organization.

(iii) Suggest the placement of the following devices with justification:
(a) Repeater (b) Hub/Switch

(iv) Suggest a system (hardware/software) to prevent unauthorized access to or from the network.

****All the Best****

KENDRIYA VIDYALAYA RAIPUR REGION

TERM-2 EXAMINATION 2021-22

CLASS – XII SUB: COMPUTER SCIENCE (083)

Marking Scheme_1

Section –A

Q1. def Pop(MyStack):
if len(MyStack) > 0:

```
 MyStack.pop()
else:
 print("Stack is empty.")
```
(2 M for correct code)

Q2.i) (i) HTTP - Hyper Text Transfer Protocol

(ii) ARPANET - Advanced Research Project Agency Network (½ for each)

ii) The NIC manufacturer assign a unique physical address to each NIC cars, this physical address is known as MAC address.

A MAC address is a 6-byye address with each byte separated by colon : example 10:BS:04:56:2E:FC (1/2 m for definition and 1/ for example) .

Q3. Primary key is the key which uniquely identifies a tuple but foreign key is the key which takes reference from primary key

ii)There is only one primary key in a table but there can be multiple foreign key on a table. (2 M for correct difference)

Q4. fetchone() :- The fetchone() method will return only one row from the result set in the form of tuple containing a record.

(B) rowcount() :- cursor.rowcount() that always return how many records have been retrieved so for using any of the fetch..() methods.

(1 M for each correct answer)

Q5. i) 2

ii)19-Mar-2004 12-Dec-2003

iii)59000

iv)

108	Lawn Tennis	4	25000	19-Mar-2004

(1/2 M for each correct answer)

Q6.i)distinct (1 M for correct answer)

ii) Degree – 5 cardinality-12 (1/2 M for each correct answer)

Q7. CREATE TABLE Inventory
(MaterialId INTEGER PRIMARY KEY,
Material Varchar(50)NOT NULL,
Category Char(2) DEFAULT='E',
DatePurchase Date); (2 M for correct answer)

OR

i) Candidate Key: Pno, Name

ii) Degree:4 Cardinality:5

Section-B

Q8.
```
top=-1
stk=[]
def PUSH_IN(L):       # Allow additions to the stack
  for i in L:
    if i%2==0:
stk.append(i)
       top=len(stk)-1
```
(½ marks for correct function header)
(1 mark for correct accessing of list elements)
(½ mark for correct condition for even number)
(½ mark for applying append() correctly)
(½ mark for assignment in variable top)

OR

```
def isEmpty(stk):        # checks whether the stack is empty or not
  if stk==[]:
```

```
        return True


    else:
      return False
  def POP_OUT(stk):
    if isEmpty(stk):  # verifies whether the stack is empty or not
      print(&amp;quot;Stack Underflow&amp;quot;)
    else:    # Allow deletions from the stack
      item=stk.pop()
      if len(stk)==0:
        top=-1
      else:
        top=len(stk)
      return item
```

(½ marks for correct POP_OUT() function header)
(½ mark for checking empty stack status)
(½ mark for removing item for stack)
(1 mark for assignment in variable top)
(½ mark for returning the deleted item)

Q9. i) String and dates are not real numbers that we calculate, so sum() or avg() functions are not valid for them.
ii)There may be a Null value. (1 M for each correct answer)

Q10. I) Mr Sanghi was trying to enter the name of City in Table2 which is not present in Table1 i.e. Referential Integrity ensures that value must exist in referred table.

i) i) 100001 ii)No output (1 M for each correct answer)

Q11. (i)SELECT TNAME, CITY, SALARY FROM TRAINER ORDER BY HIREDATE;
(ii)SELECT TNAME, CITY FROM TRAINER WHERE HIREDATE BETWEEN '2001-12-01' AND '2001-12-31';
(iii)SELECT TNAME,HIREDATE,CNAME,STARTDATE FROM TRAINER, COURSE WHERE TRAINER.TID=COURSE.TID AND FEES<=10000;
(iv) SELECT CITY, COUNT(*) FROM TRAINER GROUP BY CITY;
(1 M for each correct query)

Q12. i) a. Star Topology b. Bus Topology (1M for each correct answer)

ii) a) RJ-45: RJ45 is a standard type of connector for network cables and networks. It is an 8-pin connector usually used with Ethernet cables.

(b)Ethernet: Ethernet is a LAN architecture developed by Xerox Corp along with DEC and Intel. It uses a Bus or Star topology and supports data transfer rates of up to 10 Mbps. (1M for each correct answer)

OR

A protocol means the rules that are applicable for a network or we can say that the common set of rules used for communication in network. Different types of protocols are : (i) HTTP : Hyper Text Transfer Protocol (ii) FTP : File Transfer Protocol (iii) SLIP : Serial Line Internet Protocol (iv) PPP : Point to Point Protocol (v) TCP/IP : Transmission Control Protocol/ Internet Protocol. ((1M for each correct definition and ½ M for each correct name))

Q13.i) LAN
ii) Research Lab

iii) hub in each building
iv)Firewall
(1 M for each correct answer)

KENDRIYA VIDYALAYA RAIPUR REGION

TERM-2 EXAMINATION 2021-22

SAMPLE QUESTION PAPER_2

CLASS – XII SUB: COMPUTER SCIENCE (083)

Time -90 minutes **M. Marks- 35**

General Instructions: Programming language is Python.

- This question paper is divided into 3 sections A, B and C.
- Section A has 7 Questions (1-7).Each question carries 2 marks.
- Section B has 3 Questions (8-10). Each question carries 3 marks.
- Section C has 3 case-based Questions (11-13). Each question carries 4 marks.
- Internal choices have been given for question numbers 7,8 and 12.

<table>
<tr><td>Q.NO.</td><td><u>Section A</u></td><td>M</td></tr>
<tr><td></td><td>Each question carry 2marks</td><td></td></tr>
<tr><td>1.</td><td>Write a function Push() which takes number as argument and add in a stack "MyValue"</td><td>2</td></tr>
<tr><td>2.</td><td>Write two advantages and two disadvantages of network.</td><td>2</td></tr>
<tr><td>3</td><td>What is the difference between where and having clause in SQL.</td><td>2</td></tr>
<tr><td>4</td><td>Write a small python program to insert a record in the table books with attributes (title ,isbn).</td><td>2</td></tr>
<tr><td>5</td><td>Consider the following tables FACULTY and COURSES. Write SQL commands for the statements (i) to (ii) and give outputs for SQL queries (iii) to (iv).
FACULTY
<table>
<tr><td>F_ID</td><td>Fname</td><td>Lname</td><td>Hire_date</td><td>Salary</td></tr>
<tr><td>102</td><td>Amit</td><td>Mishra</td><td>12-10-1998</td><td>12000</td></tr>
<tr><td>103</td><td>Nitin</td><td>Vyas</td><td>24-12-1994</td><td>8000</td></tr>
<tr><td>104</td><td>Rakshit</td><td>Soni</td><td>18-5-2001</td><td>14000</td></tr>
<tr><td>105</td><td>Rashmi</td><td>Malhotra</td><td>11-9-2004</td><td>11000</td></tr>
<tr><td>106</td><td>Sulekha</td><td>Srivastava</td><td>5-6-2006</td><td>10000</td></tr>
</table>
COURSES
<table>
<tr><td>C_ID</td><td>F_ID</td><td>Cname</td><td>Fees</td></tr>
<tr><td>C21</td><td>102</td><td>Grid Computing</td><td>40000</td></tr>
<tr><td>C22</td><td>106</td><td>System Design</td><td>16000</td></tr>
<tr><td>C23</td><td>104</td><td>Computer Security</td><td>8000</td></tr>
<tr><td>C24</td><td>106</td><td>Human Biology</td><td>15000</td></tr>
<tr><td>C25</td><td>102</td><td>Computer Network</td><td>20000</td></tr>
<tr><td>C26</td><td>105</td><td>Visual Basic</td><td>6000</td></tr>
</table>
i) To display the details of courses whose fees is in the range of 15000 to 50000 (both values included).
ii) To increase the fees of all courses by 500 of “System Design” Course.
iii) Select COUNT(DISTINCT F_ID) from COURSES;
iv)Select Fname,Cname from FACULTY,COURSE where COURSE.F_ID=FACULTY.F.ID;</td><td>2</td></tr>
<tr><td>6</td><td>i) What is constraint?</td><td>2</td></tr>
</table>

ii) What are single row functions ?

7 Make difference between DELETE and DROP command. Explain with suitable examples of each. 2

OR

Differentiate between Alter and Update Command

Section – B

Each question carry 3 marks

8 Write a function in Python PUSH(Arr), where Arr is a list of numbers. From this list push all numbers divisible by 5 into a stack implemented by using a list. Display the stack if it has at least one element, otherwise display appropriate error message. 3

OR

Write a function in Python POP(Arr), where Arr is a stack implemented by a list of numbers. The function returns the value deleted from the stack.

9 Define degree and cardinality. Based upon given table write degree and cardinality. 3

PATIENTS

PatNo	PatName	Dept	DocID
1	Leena	ENT	100
2	Supreeth	Ortho	200
3	Madhu	ENT	100
4	Neha	ENT	100
5	Deepak	Ortho	200

10 In a database there are two tables 'LOAN' and 'BORROWER' as shown below:

LOAN

Loan_Number	Branch_name	Amount
L-170	Downtown	3000
L-230	RedWood	4000

BORROWER

Customer_Name	Loan_number
Jones	L-170
Smith	L-230
Hayes	L-155

(i) Write Degree and Cardinality of LOAN table.

(ii) Identify the Primary Key column in the LOAN table.

(iii) How many rows and columns will be there in the natural join of these two tables?

Section – C

Each question carry 4 marks

11 Consider the following table WORKERS and DESIG. Write SQL commands for the the statements (i) to (iv) .

WORKERS

W_ID	FIRSTNAME	LASTNAME	ADDRESS	CITY
102	Sam	Tones	33 Elm St.	Paris
105	Sarah	Ackerman	440 U.S 110	New York
144	Manila	Sengupta	24 Friends Street	New Delhi
210	George	Smith	83 First Street	Howard
255	Mary	Jones	842 VineAve.	Lsantiville
300	Robert	Samuel	9 Fifth Cross	Washington
335	Henry	Williams	12 Moore Street	Boston
403	Ronny	Lee	121 Harrison St.	New York
451	Pat	Thompson	11 Red Road	Paris

DESIG

W_ID	SALARY	BENEFITS	DESIGNATION
102	75000	15000	Manager
105	85000	25000	Director
144	70000	15000	Manager
210	75000	12500	Manager
255	50000	12000	Clerk
300	45000	10000	Clerk
335	40000	10000	Clerk
403	32000	7500	Salesman
451	28000	7500	Salesman

(i) To display W_ID Firstname, Address and city of all employees living in New York from the table WORKERS.
(ii) To Display the content of WORKERS table in ascending order of LASTNAME.
(iii) To display the Firstname ,Lastname and Total Salary of all Clerks from the tables WORKERS and DESIG , Where Total Salary is calculated as a Salary +Benefits.
(iv) To display the Minimum salary among Managers and Clerks from the table DESIG.

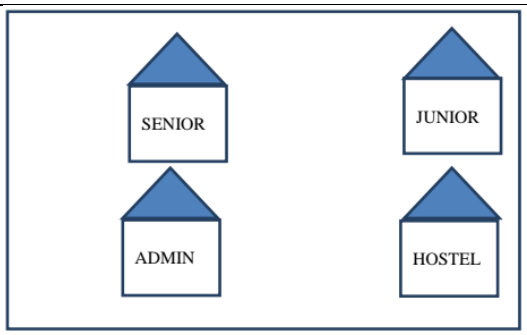
12 i) Define the following data communicating devices: 2
(a) Repeater (b)Gateway

OR

Define the following: (i)3G (ii)SMS

ii) Write the two advantages and two disadvantages of Bus Topology in network. 2

13 Multipurpose Public School, Bengaluru is Setting up the network between its Different Wings of school campus. 4
There are 4 wings named as SENIOR(S), JUNIOR(J), ADMIN(A) and HOSTEL(H).



Distance between various wings are given below:

Wing A to Wing S	100m
Wing A to Wing J	200m
Wing A to Wing H	400m
Wing S to Wing J	300m
Wing S to Wing H	100m
Wing J to Wing H	450m

Number of Computers installed at various wings are as follows:

Wings	Number of Computers
Wing A	20
Wing S	150
Wing J	50
Wing H	25

a. Suggest the best wired medium and draw the cable layout to efficiently connect various wings of Multipurpose Public School, Bengaluru.
b. Name the most suitable wing where the Server should be installed. Justify your answer.
c. Suggest a device/software and its placement that would provide data security for the entire network of the School.
d. Suggest a device and the protocol that shall be needed to provide wireless Internet access to all smartphone/laptop users in the campus of Multipurpose Public School, Bengaluru.

KENDRIYA VIDYALAYA RAIPUR REGION

TERM-2 EXAMINATION 2021-22
SAMPLE QUESTION PAPER_2
CLASS – XII SUB: COMPUTER SCIENCE (083)

Marking Scheme_2
Section –A

Q1.
```
MyValue=[]
def Push(value):
```

MyValue.append(value)

(2 M for correct code)

Q2. Advantages of network:

(a) We can share resources such as printers and scanners.

(b) We can share data and access files from any computer.

Disadvantages of network:

(a) If there is any problem in the server, then no communication can take place.

(b) Network faults can cause loss of data.

(c) If there is no privacy mechanism used then the entire network can be accessed by an unauthorized person.

Q3. Where is used with single row function where as having is used with group row function.

example- select designation,sum(salary) from desig group by designation having count(*) < 3;

select sum(benefits) from workers where designation = 'salesman';

(1 m for difference and 1 m for example)

Q4.
```
import mysql.connector as Sqlator
conn =sqlator.connect(host="localhost",user="root",passwd="",database="test")
cursor=con.cursor()
query="INSERT into books(title,isbn) values('{}'{})".format('Neelesh','5143')
cursor.execute(query)
con.close()
```
(2m for correct code)

Q5,i) Select * from Courses.where fees between 15000 and 50000;

ii)Update courses set fees = fees + 500 where Cname = "System Design";

iii) 4

iv)

Amit	Grid Computing
Rakshit	Computer Security
Rashmi Sulekha	Visual Basic Human Biology

(1/2 M for each correct answer)

Q6. i)A constraints is a condition or check application on a field or set of fields.

Example: NOT NULL (ensure that column con not have null value), CHECK (make sure that all value satisfy certain criteria), UNIQUE (ensure that all values in a column are different) etc.

ii) Single Row Function work with a single row at a time. A single row function returns a result for every row of a quired table

Examples of Single row functions are Sqrt(), Concat(), Lcase(), Upper(), Day(), etc.

(1 M for each correct answer)

Q7. DELETE is DML command while DROP is a DDL command. Delete is used to delete rows from a table while DROP is used to remove the entire table from the database. (2 M for correct difference)

OR

Alter command in DDL command but update command is DML Command.
Alter command is used to add,modify and delete a column from the table and update command is used to make changes in the record of the table

Q8.
```
def PUSH(Arr,value):
s=[]
for x in range(0,len(Arr)):
if Arr[x]%5==0:
        s.append(Arr[x])
if len(s)==0:
      print("Empty Stack")
   else:
      print(s)
```
(3 M for correct code)

OR

```
def popStack(st) :
# If stack is empty
 if len(st)==0:
    print("Underflow")
else:
    L = len(st)
   val=st[L-1]
   print(val)
  st.pop(L-1)
```
(3 M for correct code)

Q9. No of attributes called degree and no. of tuples called cardinality. (1 M for each correct definition)
4 degree , 5 cardinality (1/2 M for each correct value)

Q10. (i) Degree: 3 Cardinality: 2

(ii) Loan_Number

(iii) Rows: 6 Columns: 5

(1 mark for each correct answer)

Q11. i)SELECT W_ID, Firstname, Address, City FROM workers WHERE City = 'New York';
(ii) SELECT * FROM Workers ORDER BY LASTNAME;
(iii) SELECT Firstname,Lastname, Salary + Benefits "Total Salary" FROM Workers,Desig WHERE Workers.W_ID = Desig.W_ID AND Designation = 'Clerk';
(iv) SELECT Designation, Min(salary) FROM Desig GROUP BY Designation HAVING Designation IN ('Manager','Clerk');
(1 M for each correct query)

Q12. Ans. I) (a) Repeater: Itis a device that amplifies and restoresthe signal before it gets degraded and transmitsthe

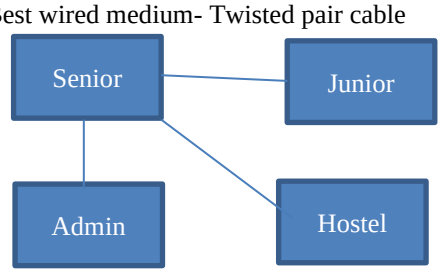
original signal back to the destination. A repeater is a regenerator and not an amplifier.

(b) Gateway: A gateway operates on all the seven layers of OSI model. A network gateway is a computer
which has internet-working capability of joining together two networks that use different base protocols. Gateway converts one protocol to another and can, therefore, connect two dissimilar networks.

OR

i) 3G: 3G (Third Generation) mobile communication technology is a broadband, packet-based transmission of text, digitized voice, video and multimedia at data rates up to 2 mbps, offering a consistent set of services to mobile computer and phone users no matter where they are located in the world.
(ii)SMS: SMS (Short Message Service) is the transmission of short text messages to and from a mobile phone, fax machine and IP address.
(1 M for each correct answer)
ii) Advantage: Easy to connect a computer or peripheral to a linear bus. Requires less cable length than a star topology.
Disadvantage : Slower as compared to tree and star topologies of network. Breakage of wire at any point disturbs the entire

Q13. a) Best wired medium- Twisted pair cable



(½ mark for correct wire medium and ½ mark for correct cable layout)

b)The server should be installed at Wing S(Senior) as per 80-20 rule i.e. maximum traffic should be local and minimum traffic should pass over backbone.

(½ mark for correct server block and ½ mark for correct justification)

c) Firewall.

(1 mark for correct answer, No partial marking)

d) Device: Wireless Access Point or Router or WiFi hotspot device or Wifi Dongle

Protocol: IEEE 802.11x or TCP/IP

(½ mark for correct Device and ½ mark for correct protocol)

All the Best

KENDRIYA VIDYALAYA SANGATHAN
REGIONAL OFFICE RAIPUR
Sample Question Paper- 3 TERM2 EXAM-2021-22
CLASS XII - COMPUTER SCIENCE (Code: 083)

Maximum Marks: 35 Time: 2 hours

General Instructions

- The question paper is divided into 3 sections – A, B and C
- Section A, consists of 7 questions (1-7). Each question carries 2 marks.
- Section B, consists of 3 questions (8-10). Each question carries 3 marks.
- Section C, consists of 3 questions (11-13). Each question carries 4 marks.
- Internal choices have been given for question numbers 7, 8 and 12.

<table>
<tr><td></td><td></td><td>Section –A
Each question carries 2 marks</td><td></td></tr>
<tr><td>Q. No</td><td>Part No.</td><td>Question</td><td>Marks</td></tr>
<tr><td>1.</td><td></td><td>Write an algorithm for pop operation in stack</td><td>(2)</td></tr>
<tr><td>2.</td><td>(i)</td><td>Expand the following:
POP, HTTP</td><td>(1)</td></tr>
<tr><td></td><td>(ii)</td><td>Write one advantage of star topology over bus topology.</td><td>(1)</td></tr>
<tr><td>3.</td><td></td><td>What is the difference between degree and cardinality of a table? What is the degree and cardinality of the following table?

<table><tr><td>EMPNO</td><td>ENAME</td><td>SALARY</td></tr><tr><td>1101</td><td>Pramod</td><td>48000</td></tr><tr><td>1102</td><td>Balswaroop</td><td>52600</td></tr></table></td><td>(2)</td></tr>
<tr><td>4.</td><td></td><td>Write the code to create the connection in which database’s name is Python, name of host, user and password can taken by user. Also, print that connection.</td><td>(2)</td></tr>
</table>

5. Write the output of the queries (i) to (iv) based on the table, COURSE given below: (2)

Table: COURSE

CID	CNAME	FEES	STARTDATE	TID
C201	AGDCA	12000	2018-07-02	101
C202	ADCA	15000	2018-11-15	103
C203	DCA	10000	2018-10-01	102
C204	DDTP	9000	2018-09-15	104
C205	DHN	20000	2018-11-01	101
C206	O LEVEL	18000	2018-07-25	105

(i) SELECT DISTINCT TID FROM COURSE;

(ii) SELECT TID, COUNT(*), MIN(FEES) FROM COURSE GROUP BY TID HAVINGCOUNT(*)>1;

(iii) SELECT COUNT(*), SUM(FEES) FROM COURSE WHERE STARTDATE< '2018-09-15';

(iv) SELECT CID, CNAME FROM COURSE ORDER BY CNAME DESC.

6. (i) Which command is used to delete a table in a database? (1)

(ii) Define natural join. (1)

7. (2)

TABLE: FACULTY

F_ID	F_Name	Hire_date	Salary
102	Amit	12-10-1998	12000
103	Nitin	24-12-1994	8000
104	Rakshit	18-5-2001	14000
105	Rashmi	11-9-2004	11000
106	Sulekha	5-6-2006	10000

(a) Identify the degree and cardinality of the table.

(b) Which field should be made the primary key? Justify your answer.

OR

Table: GAMES

GCode	GameName	Number	PrizeMoney	ScheduleDate
101	Carom Board	2	5000	23-Jan-2004
102	Badminton	2	12000	12-Dec-2003
103	Table Tennis	4	8000	14-Feb-2004
105	Chess	2	9000	01-Jan-2004
108	Lawn Tennis	4	25000	19-Mar-2004

Table: PLAYER

Pcode	Name	GCode
1	Nabi Ahmad	101
2	Ravi Sahai	108
3	Jatin	101
4	Nazneen	103
5	Anand	108

(i) Which field will be considered as the foreign key as per the above tables.

(ii) Identify the candidate key(s) from the table GAMES.

SECTION – B
Each question carries 3 marks

8. Pramod has created a dictionary containing EMPCODE and SALARY as key value pairs of 5 Employees of Parthivi Constructions. Write a program, with separate user defined functions to perform the following operations: (3)

- Push the keys (Employee code) of the dictionary into a stack, where the corresponding value (Salary) is less than 25000.
- Pop and display the content of the stack.

For example:
If the sample content of the dictionary is as follows:

		EMP={"EOP1":16000, "EOP2":28000, "EOP3":19000, "EOP4":15000, "EOP5":30000} The output from the program should be: EOP4 EOP3 EOP1 **OR** Aryan has a list containing 10 integers. You need to help him create a program with separate user defined functions to perform the following operations based on this list. ● Traverse the content of the list and push the odd numbers into a stack. ● Pop and display the content of the stack. For Example: If the sample Content of the list is as follows: **N**um=[31, 55, 76, 89, 21, 45, 76, 68] Sample Output of the code should be: 45 21 89 31	
9.	(i)	A table, PERSON is created with following attributes: P_Id LastName FirstName Address City Give the SQL command to insert a new row in the PERSONS table.	(1)
	(ii)	Differentiate between ALTER and UPDATE commands in SQL	(2)
10.		Write the queries for the following questions using the table **Product** with the following fields, under the database STORE. (P_ Code, P_Name, Qty, Price) (i) Create a database STORE (ii) Display the price of product having code as P06. (iii) Display the name of all products with quantity greater than 50 and price less than 500.	(3)

Section C
Each question carries 4 marks

11. Write queries (a) to (d) based on the tables **Sender** and **Recipients** given below: (4)

Sender

SenderID	SenderName	SenderAddress	Sendercity
ND01	R Jain	2, ABC Appls	New Delhi
MU02	H Sinha	12 Newtown	Mumbai
MU15	S Jha	27/A, Park Street	Mumbai
ND50	T Prasad	122-K,SDA	New Delhi

Recipients

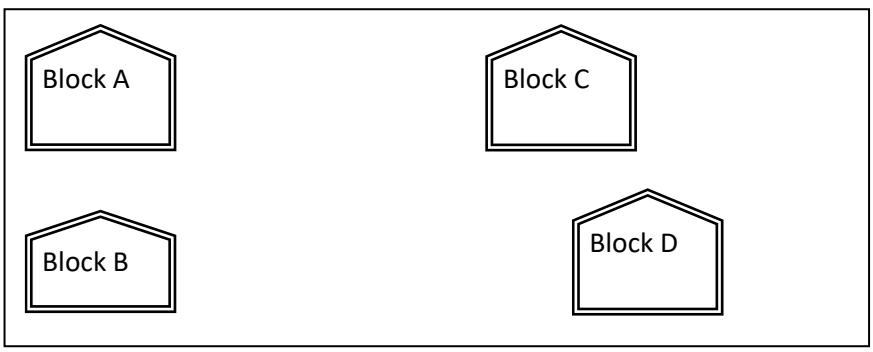
RecID	SenderID	RecName	RecAddress	recCity
KO05	ND01	R Bajpayee	5, Central Avenue	Kolkata
ND08	MU02	S Mahajan	116, A-Vihar	New Delhi
MU19	ND01	H Singh	2A, Andheri East	Mumbai
MU32	MU15	P K Swamy	B5, C S Terminals	Mumbai
ND48	ND50	S Tripathi	13, BI D Mayur Vihar	New delhi

(a) To display the names of all Senders from Mumbai

(b) To display the RecID, Sendername, SenderAddress, RecName, RecAddress for every Recipient

(c) To display Recipient details in ascending order of RecName

(d) To display number of Recipients from each city

<table>
<tr><td>12.</td><td>(i)</td><td>Give two advantages and two disadvantages of Radiowave
OR
Define the following terms:
Modem, Bluetooth</td><td>(2)</td></tr>
<tr><td></td><td>(ii)</td><td>What is the difference between star topology and bus topology of network?</td><td>(2)</td></tr>
<tr><td>13.</td><td></td><td>Shiva Multi Tech Corporation (SMTC) has set up its new center at four offices for web based activities. The 4 blocks of buildings are as shown in the diagram below:
 

Center to center distances between various blocks
<table><tr><td>Black A to Block B</td><td>50 m</td></tr><tr><td>Block B to Block C</td><td>150 m</td></tr><tr><td>Block C to Block D</td><td>25 m</td></tr><tr><td>Block A to Block D</td><td>170 m</td></tr><tr><td>Block B to Block D</td><td>125 m</td></tr><tr><td>Block A to Block C</td><td>90 m</td></tr></table>
Number of Computers
<table><tr><td>Black A</td><td>25</td></tr><tr><td>Block B</td><td>50</td></tr><tr><td>Block C</td><td>125</td></tr><tr><td>Block D</td><td>10</td></tr></table>
(a) Which of the following devices will be suggested by you to connect each computer in each of the block? ● Gateway ● Switch ● Modem .
(b) Suggest the most suitable place (i.e. block) to house the server of this organisation with a suitable reason.
(c) What will be the best possible connectivity out of the following, you will suggest to connect the new setup of offices in Bengalore with its London based office?
● Infrared ● Satellite Link ● Ethernet Cable
(d) Company is planning to connect its Block in Hyderabad which is more than 20 km. Which type of network will be formed?</td><td>(4)</td></tr>
</table>

KENDRIYA VIDYALAYA SANGATHAN

REGIONAL OFFICE RAIPUR

MARKING SCHEME SAMPLE PAPER – 3 TERM2 EXAM-2021-22

CLASS XII - COMPUTER SCIENCE (Code: 083)

Maximum Marks: 35 Time: 2 hours

General Instructions

- The question paper is divided into 3 sections – A, B and C
- Section A, consists of 7 questions (1-7). Each question carries 2 marks.
- Section B, consists of 3 questions (8-10). Each question carries 3 marks.
- Section C, consists of 3 questions(11-13). Each question carries 4 marks.
- Internal choices have been given for question numbers – 7, 8 and 12

		Section -A **Each question carries 2 marks**		
Q. No	**Part No.**	**Question**	**Marking Instructions**	**Marks**
1.		**Algorithm Steps** 1. if (Top == – 1) write "Stack is empty" and go to step 4 2. ITEM = data [Top] 3. Top = Top – 1 4. Stop.	2 marks for correct answer.	(2)
2.	(i)	POP : Post Office Protocol HTTP: Hypertext Transfer Protocol	½ mark for each correct expansion	(1)
	(ii)	Advantage of star topology over bus topology : The star topology is the most reliable as there is a direct connection of every nodes in the network with the central node, so any problem in any node will affect the particular node only	1 mark for each correct answer	(1)
3.		**Degree**: The number of attributes or columns in a table is called the degree of the table. The degree of the given table is 3. **Cardinality:** The number of rows or records in a table is called the cardinality of the table. The cardinality of the given table is 2.	1 mark for correct difference. 1 mark for correct degree and cardinality.	(2)

4.		import mysql.connector mycon = mysql.connector.connect(host = "localhost", user = "root", passwd = "tiger", database = "Python") print(mycon)	½ mark for Import statement, ½ mark for printing connection object.1 mark for correct connection	(2)
5.		The output of the queries (i) to (iv) based on the table, COURSE. (i) **DISTINCT TID** 101 103 102 104 105 (ii) TID COUNT(*) MIN(FEES) 101 2 12000 (iii) COUNT(*) SUM(FEES) 2 30000 (iv) CID CNAME C206 O LEVEL C205 DHN C204 DDTP C203 DCA C201 AGDCA C202 ADCA	½ mark for each correct output	(2)
6.	(i)	DROP TABLE <TABLE NAME>	1 mark for correct answer	(1)
	(ii)	Natural Join: The join in which only one of the identical columns existing in both tables is present, No duplication of columns.	1 mark for correct answer.	(1)
7.		(a) Degree: 4 Cardinality: 5 (b) **F_ID** should be made the primary key as it uniquely identifies each record of the table.	½ mark each for correct degree and cardinality ½ mark for correct field and ½ mark for justification.	(2)

		OR (i) GCode (ii)GCode and GameName	½ mark for each correct field name 1 mark for correct answer	
		SECTION – B **Each question carries 3 marks**		
8.		**# Question No 8 (first option)** **EMP={"EOP1":16000, "EOP2":28000,** **"EOP3":19000, "EOP4":15000, "EOP5":30000}** **def PUSH(S,N):** **S.append(N)** **def POP(S):** **if S!=[]:** **return S.pop()** **else:** **return None** **ST=[]** **for k in EMP:** **if EMP[k]<25000:** **PUSH(ST,k)** **while True: if** **ST!=[]:** **print(POP(ST),end=" ")** **else:** **break** **OR** **# Question No 8 (second option)** **Num=[**31, 55, 76, 89, 21, 45, 76, 68] **def PUSH(S,N):**	1 mark for correct PUSH operation 1 mark for correct POP operation 1 mark for correct function calls and displaying the output 1 mark for correct PUSH operation	(3)

		S.append(N) **def POP(S):** **if S!=[]:** **return S.pop()** **else:** **return None** **ST=[]** **for k in N:** **if k%2!=0:** **PUSH(ST,k)** **while True:** **if ST!=[]:** **print(POP(ST),end=" ")** **else:** **break**	1 mark for correct POP operation 1 mark for correct function calls and displaying the output	
9.	(i)	INSERT INTO PERSONS VALUES(3, 'Pettersen' 'Kerry' ,'Storgt 20','Dollas') #or similar command	1 mark for correct command	(1)
	(ii)	**Alter:** It belongs to DDL category. It changes the structure of the table. Columns can be added, modified , deleted etc **Update:** It belongs to DML category. It modifies data of the table. Data can be changed, updated with values and expressions.	2 marks for 2 correct difference.	(2)
10.		**(i) CREATE DATABASE STORE;** **(ii) SELECT Price FROM Product WHERE P_Code="P06";** **(iii) SELECT P_Name FROM Product WHERE Qty>50 AND Price<500;**	1 mark for each correct query.	(3)
		Section C **Each question carries 4 marks**		
11.		**(a)SELECT SenderName FROM Sender where Sendercity = 'Mumbai';** **(b) SELECT RecID, Sendername, SenderAddress, RecName, RecAddress FROM Sender S, Recipients R WHERE S.SenderID = R.SenderID;** **(c)SELECT * FROM Recipients ORDER BY RecName;**		

		(d) SELECT COUNT(*) FROM Recipients GROUP BY recCity.		

		FROM EMPLOYEE GROUP BY DEPTID; (b) SELECT NAME, DEPTNAME FROM EMPLOYEE, DEPARTMENT WHERE EMPLOYEE.DEPTID= DEPARTMENT.DEPTID AND SALARY>50000; (c) SELECT NAME FROM EMPLOYEE WHERE SALARY IS NULL ORDER BY NAME; (d) SELECT DISTINCT DEPTID FROM EMPLOYEE;	1 mark for each correct query	(4)
12.	(i)	Advantages • Cheaper than wired network. • Provides mobility. • Easy to use over difficult terrain. Disadvantages • Insecure communication can be easily taped. • It is affected by the weather conditions such as rain, storms, thunder, etc OR **Modem**: It is a device that converts digital signal to analog signal (modulator) at the sender's site and converts back analog signal to digital signal (demodulator) at the receiver's end, in order to make communication possible via telephone lines. It enables a computer to transmit data over telephone or cable lines **Bluetooth:**It is used for exchanging data over a short distance from fixed and mobile devices. This type of media comes under PAN (Personal Area Network).	½ mark for each correct advantage / disadvantage 1 mark for each correct definition	(2)
	(ii)	**Star Topology:** All the nodes are directly connected with the central node or server. Easy to detect faults. It is fast in transmission. **Bus topology:** There is a single length of transmission medium on which various nodes are attached and the server can be anywhere in the transmission cable. Faults cannot be easily detected. Becomes slow with increase in node.	1 mark for each correct difference (minimum two points should be given.	(2)

13.		(a) Switch (b) Block C (c) Satellite Link (d) MAN		(4)

KENDRIYA VIDYALAYA SANGATHAN

REGIONAL OFFICE RAIPUR

Sample Question Paper - 4 TERM2 EXAM-2021-22

CLASS XII - COMPUTER SCIENCE (Code: 083)

Maximum Marks: 35 Time: 2 hours

General Instructions

- The question paper is divided into 3 sections – A, B and C
- Section A, consists of 7 questions (1-7). Each question carries 2 marks.
- Section B, consists of 3 questions (8-10). Each question carries 3 marks.
- Section C, consists of 3 questions (11-13). Each question carries 4 marks.
- Internal choices have been given for question numbers 7, 8 and 12.

		Section -A **Each question carries 2 marks**	
Q. No	**Part No.**	**Question**	**Marks**
1.		Define stack. What is the significance of TOP in stack.	(2)
2.	(i)	Expand the following: **POP , FTP**	(1)
	(ii)	**Write any two advantages of Optical Fibre Cable.**	(1)
3.		What is a primary key? How many primary keys can be there in a table?	(2)
4.		Differentiate between fetchone() and fetchall() methods.	(2)

5. Write the output of the queries (a) to (d) based on the table, TRANSACT given below: (2)

Table: TRANSACT

TRNO	ANO	AMOUNT	TYPE	DOT
T001	101	2500	Withdraw	2017-12-21
T002	103	3000	Deposit	2017-06-01
T003	102	2000	Withdraw	2017-05-12
T004	103	1000	Deposit	2017-10-22
T005	101	12000	Deposit	2017-11-06

(a) To display minimum amount transaction from the table
(b) To display total amount withdrawn from table.
(c) To display ANO, DOT, AMOUNT for maximum amount transaction.
(d) To display all information DOT wise

6 (i) Which command is used to view the list of databases in a server? (1)

(ii) Define equi-join with example. (1)

7 Consider the tables given below: (2)

Table: ACTIVITY

ACode	ActivityName	ParticipantsNum	PrizeMoney	ScheduledDate
1001	Relay 100x4	16	10000	23-Jan-2004
1002	High jump	10	12000	12-Dec-2003
1003	Shot Put	12	8000	14-Feb-2004
1005	Long Jump	12	9000	01-Jan-2004
1008	Discus Throw	10	15000	19-Mar-2004

(a) Identify the candidate key(s) from the table : ACTIVITY

(b) What is the datatype of the field ScheduledDate

OR

Table: COACH

PCode	Name	ScheduledDate
1	Ahmad Hussain	1001
2	Ravinder	1008
3	Janila	1001
4	Naaz	1003

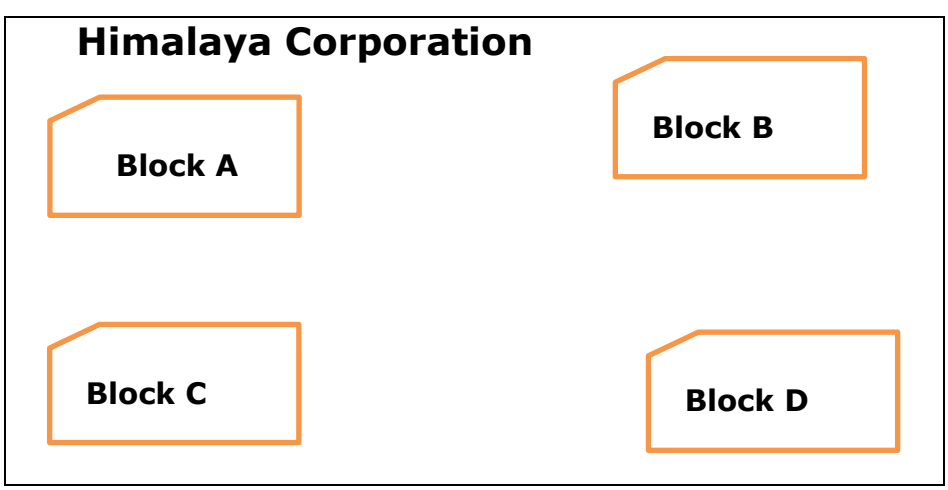
(a) Identify the degree and cardinality of the table: COACH
(b) Which key should be used as Primary key from the above table.

<table>
<tr><td></td><td></td><td>SECTION – B
Each question carries 3 marks</td><td></td></tr>
<tr><td>8</td><td></td><td>Ashish students of class XII wants to enter details of student’s- Rollno, Name and grade in a stack. Help him to write Push() methods in Python to add student’s details. Display the student’s details.

OR

Write a program to implement a stack for the students(studentno, name). Just implement Pop and display.</td><td>(3)</td></tr>
<tr><td>9</td><td>(i)</td><td>A table, STUDENT has been created in a database with the following fields.
ROLLNO, SNAME, FNAME, ADDRESS, PER, GRADE
Give the SQL command to delete a field, ADDRESS from the table.</td><td>(1)</td></tr>
<tr><td></td><td>(ii)</td><td>What is the differences between HAVING clause and WHERE clause?</td><td>(2)</td></tr>
<tr><td>10</td><td></td><td>Sagar has to create a database EMPDATA for his company and he wants to enter details of all the employees in the table EMPLOYEE. Table has the following structure: Table: EMPLOYEE

<table><tr><th>FIELD NAME</th><th>DATA TYPE</th><th>REMARKS</th></tr><tr><td>EMP_ID</td><td>CHAR(5)</td><td>PRIMARY KEY</td></tr><tr><td>EMP_NAME</td><td>CHAR(30)</td><td></td></tr><tr><td>DESIGNATION</td><td>CHAR(15)</td><td></td></tr><tr><td>BASIC</td><td>INTEGER(6)</td><td></td></tr><tr><td>ADDRESS</td><td>CHAR(20)</td><td></td></tr></table>
Help him to complete the task by suggesting appropriate SQL commands.</td><td>(3)</td></tr>
</table>

11		**ider the following tables GAMES and PLAYER. Write SQL commands for the statements (i) to (iv) and give outputs for SQL queries (v) to (viii).** **Table: GAMES** (i) To display the name of all Games with their Gcodes. (ii) To display details of those games which are having PrizeMoney more than 7000. (iii) To display the content of the GAMES table in ascending order of ScheduleDate. (iv) To display sum of PrizeMoney for each of the Number of participation	(4)
12	(i)	Give one advantage and one disadvantage of Bus topology OR Define the following terms: URL, IP Address	(2)
	(ii)	Write the difference between LAN and MAN.	(2)
13		Himalaya Corporation has set up its new centre at New Delhi for its office and web-based activities. It has 4 blocks of buildings.  	(4)

GCode	GameName	Number	PrizeMoney	ScheduleDate
101	Carom Board	2	5000	23-Jan-2004
102	Badminton	2	12000	12-Dec-2003
103	Table Tennis	4	8000	14-Feb-2004
105	Chess	2	9000	01-Jan-2004
108	Lawn Tennis	4	25000	19-Mar-2004

Distance between the various blocks is as follows:

A to B	50 m
B to C	110m
C to D	105 m
A to D	165 m
B to D	45 m
A to C	40 m

Numbers of computers in each block

Block A -	30
Block B -	45
Block C -	50
Block D -	75

(a) Suggest and draw the cable layout to efficiently connect various blocks of buildings within the New Delhi centre for connecting the digital devices.

(b) Suggest the placement of the following device with justification
   i. Repeater
   ii. Hub/Switch

(c) Which kind of network (PAN/LAN/WAN) will be formed if the Noida office is connected to its head office in Mumbai?

(d) Which fast and very effective wireless transmission medium should preferably be used to connect the head office at Mumbai with the centre at New Delhi?

[6]

KENDRIYA VIDYALAYA SANGATHAN

REGIONAL OFFICE RAIPUR

MARKING SCHEME SAMPLE PAPER – 4 TERM2 EXAM-2021-22

CLASS XII - COMPUTER SCIENCE (Code: 083)

Maximum Marks: 35 Time: 2 hours

General Instructions

- The question paper is divided into 3 sections – A, B and C
- Section A, consists of 7 questions (1-7). Each question carries 2 marks.
- Section B, consists of 3 questions (8-10). Each question carries 3 marks.
- Section C, consists of 3 questions(11-13). Each question carries 4 marks.
- Internal choices have been given for question numbers – 7, 8 and 12

		Section -A **Each question carries 2 marks**		
Q. No	**Part No.**	**Question**	**Marking Instructions**	**Marks**
1.		A stack is an abstract data type and a linear or user-defined data structure based on the principle of Last In First Out (LIFO). A stack is a list where insertion and deletion can take place only at one end called **Top**.	1 mark each for def. of stack and TOP.	(2)
2.	(i)	POP : Post Office Protocol. FTP: File Transfer Protocol.	½ mark for each correct expansion	(1)
	(ii)	Advantages of Optical Fibre Cable : 1. It is immune to electrical and magnetic fields. So, the data does not get disturbed and pure data is retrieved on the other end. 2. It guarantees secure transmission and has a very high transmission capacity.	1mark for correct answer	(1)
3.		It is a combination of one or more fields in a table that can uniquely identify a record. There can be only one primary key in a table. It plays an important role in identifying the records, because it is the primary key who carries unique values. The criteria for a field to become primary key is : It must be carrying unique and NOT NULL values.	2 mark for correct answer	(2)

4.		fetch(): It returns the next row from the result set as tuple. If there are no more rows to retrieve, None is returned. fetchall():It fetches all the rows of a query result. It returns all the rows as a list of tuples. An empty list is returned if there is no record to fetch.	2 mark for correct answer	(2)
5.		(i) To display minimum amount transaction from the table. **Ans.** select min(amount) from Transact; (ii) To display total amount withdrawn from table. **Ans.** select sum(amount) from Transact where type = "Withdraw"; (iii) To display ANO, DOT, AMOUNT for maximum amount transaction. **Ans.** select ANO, DOT, AMOUNT from Transact where AMOUNT = max(AMOUNT); (iv) To display all information DOT wise. **Ans.** select * from Transact order by DOT;	½ mark for each correct output	(2)
6.	(i)	SHOW TABLES;	1 mark for correct answer	(1)
	(ii)	Equi join is a simple SQL join condition that uses equal sign as a comparison operator. Syntax: SELECT col1, col2, col3 FROM table1, table2 WHERE table1.col1 = table2.col1;	1 mark for correct answer and syntax.	(1)
7.		(a) Acode, ActivityName (b) Date OR (a) Degree: 3 Cardinality :4 (b) PCode	½ mark for each correct field name 1 mark for correct answer OR ½ Mark each for correct degree & cardinality, 1 Mark for correct field name.	(2)

		SECTION – B **Each question carries 3 marks**		

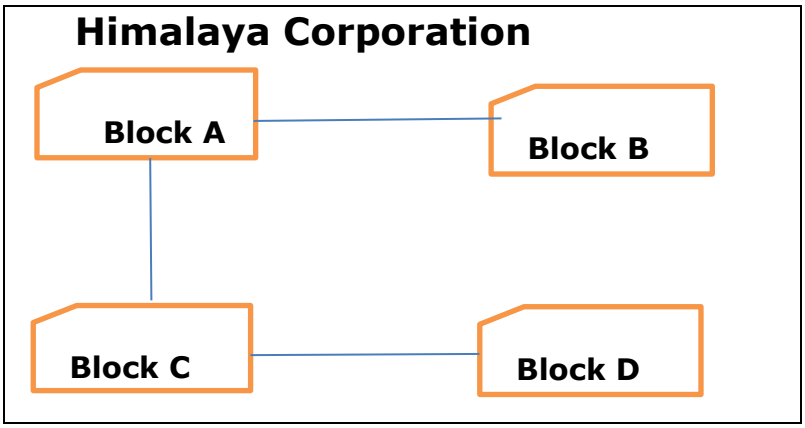
8.		**# Question No 8 (first option)**
		def push(stack):
		s=[]
		s.append(input("Enter student rollno?"))
		s.append(raw_input("Enter student name"))
		s.append(raw_input("Enter student grade"))
		stack.append(s)
		
		def display (stack):
		l=len(stack)
		print "STACK CONTENTS"
		for i in range(l-1,-1,-1):
		print stack[i]
		
		stack=[]
		print "Creating Stack"
		n = input("Enter the number of students")
		for i in range(n):
		student = []
		student.append(input("Enter student rollno?"))
		student.append(raw_input("Enter student name"))
		student.append(raw_input("Enter student grade"))
		stack, append(student) push(stack)
		display(stack)
			1 mark for correct PUSH operation
			
			1 mark for correct display() operation
			
			1 mark for correct function calls and entering the values for students.
				(3)

		OR **# Question No 8 (second option)**		

		stk=[]
		top=-1
		def POP():
		if(top==-1):
		print("NO STUDENT DATA")
		else:
		print("Student details are:", stk.pop())
		top=len(stk)-1
		def display():
		if(top==-1):
		print("NO STUDENT DATA")
		else:
		t=len(stk)-1
		print(stk[t])
		for i in range(t-1,-1,-1):
		print(stk[i])
		display()
		POP()
			1.5 mark for correct POP operation
			1.5 mark for correct function calls and displaying the output
			Note: Marks to be awarded for any other correct logic given by the student	

9.	(i)	ALTER TABLE STUDENT DROP COLUMN ADDRESS;	1 mark for correct command	(1)
	(ii)	Differences between HAVING clause and WHERE clause are: **HAVING:** HAVING clause is used to filter record from the groups based on the specified condition. HAVING clause implements in column operation. HAVING clause can contain aggregate function. **WHERE:** WHERE clause is used to filter the records from the table based on the specified condition. WHERE clause implements in row operation. WHERE clause cannot contain aggregate function.	2 Marks for 02 correct difference.	(2)
10		**CREATE DATABASE EMPDATA;** **CREATE TABLE EMPLOYEE (** **EMP_ID CHAR(5)PRIMARY KEY, EMP_NAME CHAR(30),** **DESIGNATION CHAR(15), BASIC INT(6)** **VGTEMP INT,** **ADDRESS CHAR(20)** **);**	½ mark for creating database. 2.5 marks for command to create a table.	(3)

11		(v) To display the name of all Games with their Gcodes. An: Select GCode, GameName from Games; (vi) To display details of those games which are having PrizeMoney more than 7000. Ans: Select * from Games where PrizeMoney>7000; (vii) To display the content of the GAMES table in ascending order of ScheduleDate. Ans: Select *from Games order by ScheduleDate; (viii) To display sum of PrizeMoney for each of the Number of participation Ans:Select SUM(PrizeMoney) from Games Group by Number.	1 Mark for each correct answer.	(4)
12		**Bus topology:** A bus topology is an arrangement in which the computers and the peripheral devices are connected to a common single data line. **Advantage**: All the nodes are connected directly, so very short cable length is required. **Disadvantage:** In case of any fault occurred in data transmission, fault isolation is very difficult. We have to check the entire network to find the fault. OR **URL:** A uniform resource locator, abbreviated URL, also known as web address, is a specific character string that constitutes a reference to a resource. In most web browsers, the URL of a web page is displayed on top inside an address bar. A URL is a formatted text string used by web browsers. **IP Address (Internet Protocol Address)** :The Internet Protocol (IP) is the method or protocol by which data is sent from one computer to another on the Internet. Each computer (known as a host) on the Internet has atleast one IP address that uniquely identifies it from all other computers on the Internet. (e) Suggest and draw the cable layout to efficiently connect various blocks of buildings within the New Delhi centre for connecting the digital devices. Ans: Bus Topology as follows or Star Topology.	1 Mark each for advantage & 1 Mark for disadvantage 1 Mark each for correct def. of URL and IP Address.	(2)

13		 (f) Suggest the placement of the following device with justification **Repeater :** Between C to D in Bus topology. Between A to D in Star Topology. To amplify the signal as the distance between these Blocks are greater than 90-100 Meters. **Hub/Switch**: In each Block to connect all computers together. (g) Which kind of network (PAN/LAN/WAN) will be formed if the Noida office is connected to its head office in Mumbai? Ans: WAN (h) Which fast and very effective wireless transmission medium should preferably be used to connect the head office at Mumbai with the centre at New Delhi? Ans: Satellite	1 Mark for each correct answer.	(4)

KENDRIYA VIDYALAYA SANGATHAN

REGIONAL OFFICE RAIPUR

SAMPLE PAPER – 5 TERM2 EXAM-2021-22

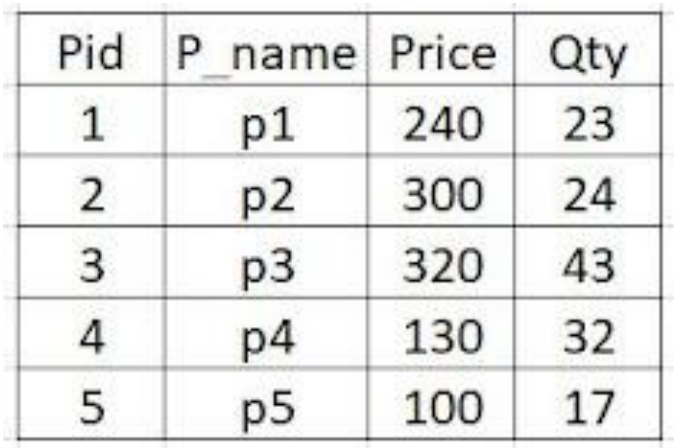
CLASS XII - COMPUTER SCIENCE (Code: 083)

Maximum Marks: 35 Time: 2 hours

General Instructions

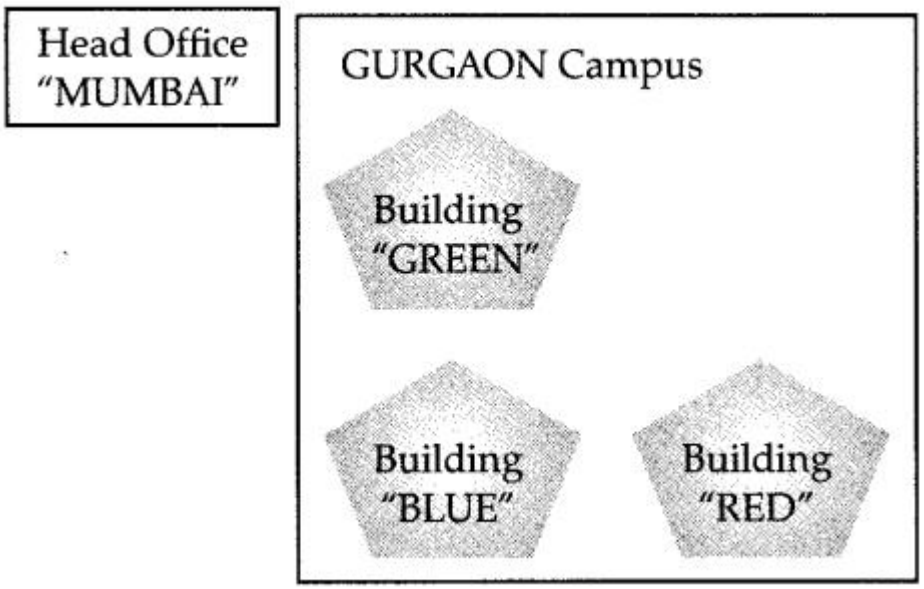
- The question paper is divided into 3 sections – A, B and C
- Section A, consists of 7 questions (1-7). Each question carries 2 marks.
- Section B, consists of 3 questions (8-10). Each question carries 3 marks.
- Section C, consists of 3 questions(11-13). Each question carries 4 marks.
- Internal choices have been given for question numbers – 7, 8 and 12

		Section -A **Each question carries 2 marks**	
Q. No	**Part No.**	**Question**	**Marks**
1.		What is push operation in stack ?	(2)
2.	(i)	Expand the following: **VoIP, WAN**	(1)
	(ii)	Write two characteristics of Wi-Fi.	(1)
3.		Write two wild card characters which are used with like operator?	(2)
4.		a. What is connection? What is its role? b. Which package must be imported in Python to create a database connectivity application?	(2)

5.		Write the output of the following on the basis of given Table : Product  **1. Select max(price) from product;** **2. Select distinct(price) from product;** **3. Select sum(price) where Qty > 30;** **4. Select count(distinct(price)) from product;**	(2)
6.	(i)	What do you mean by data redundancy?	(1)
	(ii)	What do you mean by data integrity?	(1)
7		In a hospital, the patients are allocated to wards. A database named 'Hospital' is created. One table in this database is: WARD with **WardId**, **WardName**, **NumOfBeds** as columns and **WardId** as the primary key. Write another suitable table you could expect to see in the 'Hospital' database, with 3 suitable columns identifying Primary key and Foreign key in the table that you expect. **OR** Is NULL value the same as 0 (zero)? Write the reason for your answer.	(2)
		SECTION-B **Each question carries 3 marks**	
8		Write a function in python, MakePush(Package) and MakePop(Package) to add a new Package and delete a Package from a List of Package Description, considering them to act as push and pop operations of the Stack data structure. **OR** Write a function in python, *Push(Stu)* and *MakePop(Stu)* to add a new student and delete student from a List of Stu contain rollno, Sname and Class as list, considering them to act as push and pop operations of the Stack data structure	3

<table>
<tr><td>9</td><td>(i)</td><td>There is a column Salary in a Table EMPLOYEE. The following two statements are giving different outputs. What may be the possible reason?
SELECT COUNT(*) FROM EMPLOYEE;
SELECT COUNT(SALARY) FROM EMPLOYEE;</td><td>1</td></tr>
<tr><td></td><td>(ii)</td><td>Shanya Khanna is using a table Employee. It has the following columns. Admno, Name, Agg, Stream [column Agg contains aggregate marks] She wants to display highest Agg in each stream.
She wrote the following statement:
SELECT Stream, MAX(Agg) FROM Employee;
But she did not get the desired result. Rewrite the above query with necessary changes to help her get the desired output.</td><td>2</td></tr>
<tr><td>10</td><td></td><td>In a database STUDENT, there is a Table RESULT with the following contents:
Table :RESULT
<table>
<tr><th>REGNO</th><th>NAME</th><th>MARKS</th><th>SECTION</th><th>CLASSTEACHER</th><th>ADMNO</th></tr>
<tr><td>10004</td><td>Mohit</td><td>90</td><td>A</td><td>Ms Nathani</td><td>Z101</td></tr>
<tr><td>10211</td><td>Mukta</td><td>85</td><td>B</td><td>Mr. Gokhle</td><td>Z109</td></tr>
<tr><td>10923</td><td>Mohit</td><td>92</td><td>B</td><td>Mr. Gokhle</td><td>Z120</td></tr>
<tr><td>10313</td><td>Sana</td><td>80</td><td>A</td><td>Ms Nathani</td><td>Z234</td></tr>
</table>
(i) Identify the attributes, which can be chosen as Candidate Keys in the table RESULT.
(ii) Write SQL Query to change the Marks of Mukta to 95 in the table RESULT.</td><td>3</td></tr>
<tr><td>11</td><td></td><td>In a database there are two tables “ITEM” and “CUSTOMER” as shown below:
Table : ITEM
<table>
<tr><th>ID</th><th>ItemName</th><th>Company</th><th>Price</th></tr>
<tr><td>1001</td><td>Moisturiser</td><td>XYZ</td><td>40</td></tr>
<tr><td>1002</td><td>Sanitizer</td><td>LAC</td><td>35</td></tr>
<tr><td>1003</td><td>Bath Soap</td><td>COP</td><td>25</td></tr>
<tr><td>1004</td><td>Shampoo</td><td>TAP</td><td>95</td></tr>
<tr><td>1005</td><td>Lens Solution</td><td>COP</td><td>350</td></tr>
</table>
Table : CUSTOMER
<table>
<tr><th>C_ID</th><th>CustomerName</th><th>City</th><th>ID</th></tr>
<tr><td>01</td><td>Samridhh Ltd</td><td>New Delhi</td><td>1002</td></tr>
<tr><td>05</td><td>Big Line Inc</td><td>Mumbai</td><td>1005</td></tr>
<tr><td>12</td><td>97.8</td><td>New Delhi</td><td>1001</td></tr>
<tr><td>15</td><td>Tom N Jerry</td><td>Bangalore</td><td>1003</td></tr>
</table>
Write the command in SQL queries for the following:</td><td>4</td></tr>
</table>

		(i) To display the details of Items whose Price is in the range of 40 and 95(Both values included) **(ii)** To display the CustomerName, City from table Customer and ItemName and Price from table Item, with their corresponding matching ID. **(iii)** To increase the price of all the products by 50. **(iv)** To display the CustomerName of customer table whose city name start with 'N'.	
12	(i)	Identify the type of topology from the following: (i) In it, each node is connected with the help of a single co-axial cable. (ii) In it, each node is connected with the help of independent cable with the help of acentral switching (communication controller). OR Write the name of the most suitable wireless communication channels for each of thefollowing situations. (i) Communication between two offices in different countries. (ii) To transfer the data from one mobile phone to another.	2
	(ii)	Write one advantage and one disadvantage of using Optical fiber cable.	2
13		ABC Consultants are setting up a secured network for their office campus at Gurgaon for their day-to-day office and web-based activities. They are planning to have connectivity between three buildings and the head office situated in Mumbai. Answer the questions (i) to (iv) after going through the building positions in the campus and other details, which are given below :	4



Distances between various buildings:

Building "GREEN" to Building "RED"	110 m
Building "GREEN" to Building "BLUE"	45 m
Building "BLUE" to Building "RED"	65 m
Gurgaon Campus to Head Office	1760 km

Number of computers

Building "GREEN"	32
Building "RED"	150
Building "BLUE"	45
Head Office	10

i. Suggest the most suitable place (i.e., building) to house the server of this organization. Also give a reason to justify your suggested location.

ii. Suggest a cable layout of connections between the buildings inside the campus.

[4]

		iii. Suggest the placement of the following devices with justification: o Modem. o Switch. iv. The organization is planning to provide a high speed link with its head office situated in Mumbai using a wired connection. Which of the following cables will be most suitable for this job ? o Optical Fiber o Co-axial Cable o Ethernet Cable	

[5]

KENDRIYA VIDYALAYA SANGATHAN

REGIONAL OFFICE RAIPUR

MARKING SCHEME SAMPLE PAPER – 5 TERM2 EXAM-2021-22

CLASS XII - COMPUTER SCIENCE (Code: 083)

Maximum Marks: 35 Time: 2 hours

General Instructions

- The question paper is divided into 3 sections – A, B and C
- Section A, consists of 7 questions (1-7). Each question carries 2 marks.
- Section B, consists of 3 questions (8-10). Each question carries 3 marks.
- Section C, consists of 3 questions(11-13). Each question carries 4 marks.
- Internal choices have been given for question numbers – 7, 8 and 12

		Section -A **Each question carries 2 marks**	
Q. No	**Part No.**	**Question**	**Marks**
1.		Push operation refers to inserting an element in the stack. Since there's only one position at which the new element can be inserted — Top of the stack, the new element is inserted at the top of the stack	(2)
2.	(i)	**Voice over internet protocol** **Wide Area Network**	(1)
	(ii)	1. It is wireless network. 2. It is for short range.	(1)
3.		**% and underscore(_)**	(2)
4.		(a) A **Connection** (represented through a connection object) is the session between the application program and the database. To do anything with database, one must have a connection object. (b) There are multiple packages available through which database connectivity applications can be created in Python. One such package is **mysql.connector**.	(2)

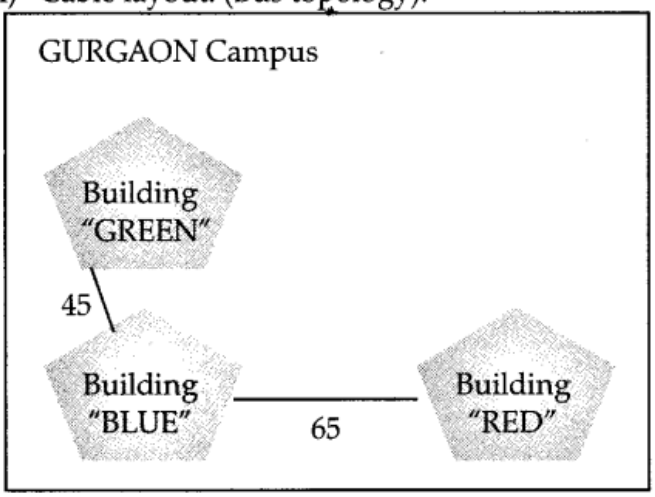
5		**Ans.a. 320** **Ans b.** **240** **300** **320** **130** **100** Ans c. **Error** **Ans. d. 5**	2
6.	(i)	Ans. Duplication of data in a table is called redundancy.	(1)
	(ii)	Data integrity means maintaining accuracy and consistency of data.	(1)
7		Table - Patient Columns - PatientId, PatientName, WardId Patient Id - Primary Key and WardId - Foreign Key (You can also mention other appropriate table with suitable columns) OR Null value indicates nothing or empty value. It does not represent 0 or space character. The column having Null value is ignored while applying aggregate functions like MIN, MAX or COUNT etc.	2
		SECTION-B **Each question carries 3 marks**	

		def MakePush(Package):
		a=int(input("enter package title : "))
		Package.append(a)
		
		def MakePop(Package):
		if (Package==[]):
		print("Stack empty")
		else:
		print ("Deleted element:",Package.pop())
		
		OR
		def Push(Stu):
		rollno=int(input("enter package title : "))
		Sname=int(input("enter package title : "))
		Class=int(input("enter package title : "))
		info=[rollno,Sname,Class]
			3

		Stu.append(info)
		
		def Pop(Stu):
		if (Stu==[]):
		print("Stack empty")
		else:
		print ("Deleted element:",Stu.pop())	

9	(i)	If SALARY column is defined as NULL and then if any employee's salary is missing then count function will not count those null valued salary. For example if EMPLOYEE table contains 10 record of employees and out of 10 employees say 7th employee's salary is not entered then output will be 10 and 9 for respective queries.	1
	(ii)	SELECT Stream ,MAX(Agg) FROM Employee GROUP BY Stream;	2
10		(i) **REGNO** and **ADMNO** can be chosen as Candidate Keys in the table RESULT. (ii) UPDATE RESULT SET MARKS=95 WHERE NAME="Mukta";	3
11		(i) SELECT * FROM ITEM WHERE PRICE >= 40 AND PRICE <= 95; (ii) SELECT CUSTOMERNAME, CITY, ITEMNAME, PRICE FROM CUSTOMER CUST,ITEM WHERE CUST.ID = ITEM.ID; **(iii)** UPDATE ITEM SET PRICE = PRICE + 50 ; (iv) SELECT CUSTOMERNAME FROM CUSTOMER WHERE CITY LIKE 'N%'	4
12	(i)	(i) Bus Topology (ii) Star Topology **OR** **(i)** Satellite (ii) Bluetooth	2
	(ii)	**Advantage:** (i) Not susceptible to electrical and magnetic interference i.e. free from EMI. (ii) High speed and Data Transmission capacity (iii) Secure Transmission **Disadvantage:** (i) Expensive and not suitable for domestic use. (ii) Fibers are fragile so installation is typical job. (iii) Difficult to solder/extend.	2
13		(i) The most suitable place to install server is building "RED" because this building have maximum computer which reduce communication delay.	4

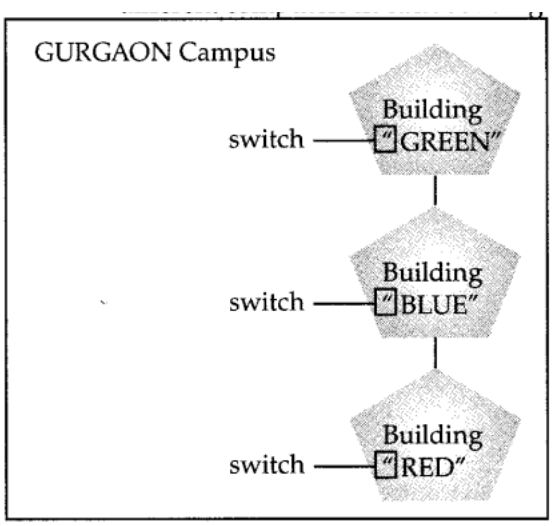
(ii) Cable layout. (Bus topology).



(iii) Modem -Red Building

In the layout a switch each, would be needed in all the buildings, to interconnect the group of cables from the different computers in each in

In the layout a switch each, would be needed in all the buildings, to interconnect the group of cables from the different computers in each building.



(iv) Optical fiber

[9]

KENDRIYA VIDYALAYA SANGATHAN

REGIONAL OFFICE RAIPUR

SAMPLE PAPER – 6 TERM2 EXAM-2021-22

CLASS XII - COMPUTER SCIENCE (Code: 083)

Maximum Marks: 35 Time: 2 hours

General Instructions

- The question paper is divided into 3 sections – A, B and C
- Section A, consists of 7 questions (1-7). Each question carries 2 marks.
- Section B, consists of 3 questions (8-10). Each question carries 3 marks.
- Section C, consists of 3 questions(11-13). Each question carries 4 marks.
- Internal choices have been given for question numbers – 7, 8 and 12

		Section -A **Each question carries 2 marks**	
Q. No	**Part No.**	**Question**	**Marks**
1.		Explain Push and POP operation of stack.	(2)
2.	(i)	Expand the following: 1. GSM **2.** GPRS	(1)
	(ii)	Which protocol is used to creating a connection with a remote machine?	(1)
3.		Differentiate between Alternate key and Candidate key.	(2)
4.		Explain the following 'results' retrieval methods with examples. A. fetchone () B. fetchall ()	(2)

5. **Answer the following questions on the basis the given table.** (2)

Admno	Name	Subject	Sex	Average
1001	Amit	Math	M	85.5
1002	Suman	English	F	90

a. How many attributes are there in above table?
b. How many tuples are there in above table?
c. What is the degree of above table?
d. What is the cardinality of above table?

6. (i) Write statement to open a database named "student". (1)

(ii) Which statement is used to show all existing table in database. (1)

7 Prathmesh has created the following table with the name 'Veterinary'. (2)

Column Name	Constraint
AnimalId	Primary Key
VacinnationsDate	
AnimalName	Not Null
OwnerName	

One of the rows inserted is as follows :

AnimalId	VacinnationDate	AnimalName	OwnerName
A101	2015-02-12	Sheru	Amit Sharma

(i) What are the data type of columns **AnimalId** and **VacinnationDate** in the table Veterinary ?

(ii) Prathmesh is now trying to insert the following row

AnimalId	VacinnationDate	AnimalName	OwnerName
A102	2015-08-09	NULL	Abhimanyu Shah

Will he be able to successfully insert it? Give reason.

OR

Write a MySql command for creating a table "BANK" whose structure is given below:

		Table : BANK **Field Name** / **Datatype** / **Size** / **Constraint** Acct_number / Integer / 4 / Primary Key Name / Varchar / 3 / BirthDate / Date / / Balance / Integer / 8 / Not Null	
		SECTION-B **Each question carries 3 marks**	
8		Write a function in python, Push(Package) and Pop(Package) to add details of employee contain information (Empid, Ename and Salary) in the form of tuple in Package and delete a Package from a List of Package Description, considering them to act as push and pop operations of the Stack data structure OR Write a user define function to push an item of integer type into stack (function to push information of student include rollno and name in the form of list/tuple or dictionary.)	3
9	(i)	Write a SQL command to view the constraints of EMP table.	1
	(ii)	Mr. AllamRaju is using a table with following columns: Name, Class, Course_Id, Course_name He needs to display names of students, who have not been assigned any stream or havebeen assigned Course_name that ends with "economics". He wrote the following command, which did not give the desired result. SELECT Name, Class FROM Students WHREE Course_name=Null OR Course_name="%economics"; Help Mt AllamRaju to run the query by removing the error and write the correct query.	2
10		Consider the tables given below. **Table: Party** PartyId / Description / CostPerPerson P101 / Birthday / 400 P102 / Wedding / 700 P103 / Farewell / 350 P104 / Engagement / 450	3

Table: Client

ClientId	ClientName	Address	Phone	NoOfGuests	PartyId
C101	A.K. Antony	A-151, Adarsh Nagar	99101956	80	P101
C102	Fauzia Aria	K-5/52, Vikas Vihar	893466448	500	P102
C103	Rashi Khanna	D-6, Hakikat Nagar	981166568	50	P101
C104	S.K. Chandra	76-A/2, MG Colony, Adarsh Avenue.	65877756	100	P104

(i) Name the Primary keys in both the tables

(ii) 'P101' data is present twice in column 'PartyId' in 'Client' table – Is there any discrepancy? Give reason for your answer.

11 — 4

In a database company, there are two tables given below:

Table: SALES

SALESMANID	NAME	SALES	LOCATIONID
S1	ANITA SINGH ARORA	250000	102
S2	Y.P.SINGH	1300000	101
S3	TINA JAISWAL	1400000	103
S4	GURDEEP SINGH	1250000	102
S5	SIMI FAIZAL	1450000	103

Table: LOCATION

LOCATION ID	LOCATIONNAME
101	Delhi
102	Mumbai
103	Kolkata
104	Chennai

Write SQL queries for the following:

(i) To display SalesmanID, names of salesmen, LocationID with corresponding location names.

(ii) To display names of salesmen, sales and corresponding location names who have achieved Sales more than 1300000.

(iii) To display names of those salesmen who have 'SINGH' in their names.

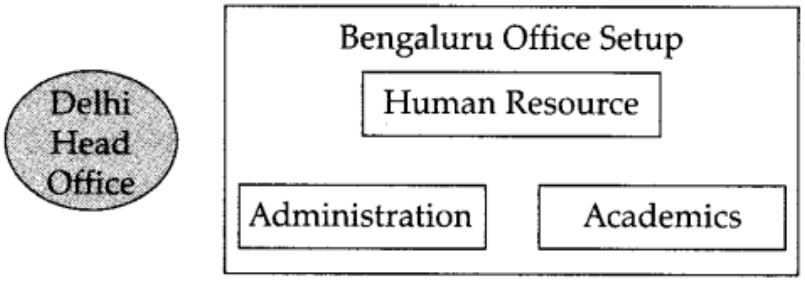
(iv) Identify Primary key in the table SALES. Give reason for your choice.

12 (i) — 2

A school with 20 stand-alone computers is considering networking them together andadding a server. State 2 advantages of doing this.

OR

Distinguish between LAN and WAN.

	(ii)	Vidya College has three departments that are to be connected into a network. Whichof the following communication medium (out of the given options), should be usedby the college for connecting their departments for very effective High Speed communication? • Coaxial Cable • Optical Fiber • Ethernet Cable Also name the type of network (out of PAN/LAN/WAN) formed.	2
13		G.R.K International Inc. is planning to connect its Bengaluru Office Setup with its Head Office in Delhi. The Bengaluru Office G.R.K. international Inc. is spread across and area of approx. 1 square kilometer, consisting of 3 blocks – Human Resources, Academics and Administration. You as a network expert have to suggest answers to the four queries (i) to (iv) raised by them. Notes : Keep the distance between blocks and number of computers in each block in mind, while providing them the solutions.  **Shortest distances between various blocks:** |	
---	---
Human Resources to Administration	100 m
Human Resources to Academics	65 m
Academics to Administration	110 m
Delhi Head Office to Bengaluru Office Setup	2350 km | **Number of computers installed at various blocks are as follows:** | BLOCK	No. of Computers
---	---
Human Resources	155
Administration	20
Academics	100
Delhi Head Office	20		4

		(i) Suggest the most suitable block in the Bengaluru Office Setup, to host the server. Give a suitable reason with your suggestion. (ii) Suggest the cable layout among the various blocks within the Bengaluru Office Setup for connecting the Blocks. (iii) Suggest a suitable networking device to be installed in each of the blocks essentially required for connecting computers inside the blocks with fast and efficient connectivity. (iv) Suggest the most suitable media to provide secure, fast and reliable data connectivity between Delhi Head Office and the Bengaluru Office Setup.	

KENDRIYA VIDYALAYA SANGATHAN

REGIONAL OFFICE RAIPUR

MARKING SCHEME SAMPLE PAPER – 6 TERM2 EXAM-2021-22

CLASS XII - COMPUTER SCIENCE (Code: 083)

Maximum Marks: 35 Time: 2 hours

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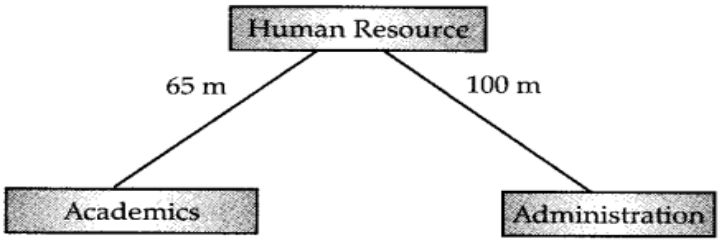
		Section -A **Each question carries 2 marks**	

Q. No	Part No.	Question	Marks
1.		Push operation refers to inserting an element in the stack. Since there's only one position at which the new element can be inserted — Top of the stack, the new element is inserted at the top of the stack. Pop operation refers to the removal of an element. .	(2)
2.	(i)	1. **GSM:** Global System for Mobile Communication. 2. **GPRS:** General Packet Radio Service.	(1)
	(ii)	**Telnet:** It is an older internet utility that lets us log on to remote computer system. It also facilitates for terminal emulation purpose.	(1)
3.		**Alternate Key**: ✓ A key that can act as a primary key but is not selected as primary key **Candidate Key**: ✓ A key that can be set as Primary key is called a candidate key.	(2)
4.		(A) **fetchone()** :- The fetchone() method will return only one row from the result set in the form of tuple containing a record. (B) **fetchall()** :- The fetchall() method return all the rows from the result set in the form of a tuple congaing the records.	(2)
5		a. How many attributes are there in above table? Ans. There are 5 attributes/columns b. How many tuples are there in above table? Ans. There are 2 tuples c. What is the degree of above table? Ans. degree – 5 d. What is the cardinality of above table? Ans. Cardinality – 2	(2)
6.	(i)	use student;	(1)
	(ii)	Show tables;	(1)
7		(i) Data type of AnimalId : Varchar/charData type of VaccinationDate : Date (ii) No Reason – Not Null Constraint applied on attribute AnimalName **OR** CREATE TABLE BANK (Acct_number INTEGER (4) PRIMARY KEY, Name VARCHAR(3) ,BirthDate DATE, Balance INTEGER (8) NOT NULL);	2

		Section -B	

8		def Push(Package):
		Empid=int(input("Enter Id of Employee: "))
		Ename=input("Enter Name of employee")
		Salary= int(input("Enter Salary of an employee"))
		T=(Empid, Ename ,Salary)
		Package.append(T)
		def Pop(Package):
		if (Package==[]):
		print("Stack empty")
		else:
		print ("Deleted element:",Package.pop())
		
		OR
		PUSH OPERATION ON STACK
		// function to push an item of integer type into stack
		stack=[ ]
		def push (stack):
		item=int(input("Enter the values of item"))
		stack.append(item)
		// function to push information of student include rollno and name in the form of list, tuple, dictionary
		
		stack=[ ]
		def push (stack):
		rollno=int(input("Enter rollno of student"))
		name =input("Enter Name of student")
		item=(rollno, name) \\ [rollno, name] \\ {rollno : "name"} \\ as per the problem
		stack.append(item)
			3

9	(i)	Desc EMP;	1
	(ii)	SELECT Name, Class FROM Students WHERE Course_name IS NULL OR Course_name LIKE '%economics';	2
10		(i) Primary key (Table : Party) - PartyId Primary key (Table : Client) - ClientId (ii) There is no discrepancy. PartyId is not the Primary key in table Client. Hence,repetition is permissible.	3
11		(i) Select SalesmanID, Name, LocationID, LocationName from SALES, LOCATIONWhere SALES.LocationID= LOCATION.LocationID ; (ii) Select Name, Sales, LocationName from SALES, LOCATION Where SALES.LocationID= LOCATION.LocationID And Sales>1300000; (iii) Select Name from SALES Where Name Like "%Singh%; (iv) Primary Key – SALESMANID , because it is containing unique value.	4

12	(I)	Sharing Resources- Resources like Printer, storage, Internet and files can be shared. Improved Communication- Communication among users can be faster using e-mail andother services. OR LAN is a local network spread over a building or campus in limited area whereas WAN isbig network and can spread across countries.	2
	(ii)	(i) Optical fiber (ii) LAN	2
13		(i) Human Resources because it has maximum number of computers. (ii)  (iii) Switch (iv) Satellite link	4