

**AGA KHAN UNIVERSITY EXAMINATION BOARD**

**HIGHER SECONDARY SCHOOL CERTIFICATE**

**CLASS XI**

**ANNUAL EXAMINATIONS (THEORY) 2023**

**Computer Science Paper I**

**Time: 1 hour 30 minutes    Marks: 50**

**INSTRUCTIONS**

1. Read each question carefully.
2. Answer the questions on the separate answer sheet provided. DO NOT write your answers on the question paper.
3. There are 100 answer numbers on the answer sheet. Use answer numbers 1 to 50 only.
4. In each question, there are four choices A, B, C, D. Choose ONE. On the answer grid, black out the circle for your choice with a pencil as shown below.

Correct Way	Incorrect Ways
1 (A) (B) ● (D)	1 (A) (B) (C) (D)
	2 (A) (B) (C) (D)
	3 (A) (B) (C) (D)
	4 (A) (B) (C) (D)

Candidate's Signature

5. If you want to change your answer, ERASE the first answer completely with a rubber, before blacking out a new circle.
6. DO NOT write anything in the answer grid. The computer only records what is in the circles.
7. You may use a scientific calculator if you wish.

1. There are four stages in data processing cycle and in each stage a number of tasks are performed.

TWO tasks that are performed during processing stage are

- A. data capture and presenting data to user.
  - B. executing instructions and presenting data to user.
  - C. data capture and transform raw data into information.
  - D. executing instructions and transform raw data into information.
2. A software that reduces the logical size of a file to save disk space is an example of a/ an
- A. device driver.
  - B. utility software.
  - C. operating system.
  - D. productivity software.
3. An example of an open source software is
- A. Skype.
  - B. Linux.
  - C. Adobe Reader.
  - D. Microsoft Windows.
4. It consists of a normal scanner and some special softwares. The scanner scans text from a document and the software changes the scanned text into editable text.
- The device/ reader identified from the given description is a/ an
- A. quick response code reader.
  - B. magnetic ink character reader.
  - C. optical mark recognition reader.
  - D. optical character recognition reader.
5. When a user installs an app in a smartphone, the app is stored in a
- A. RAM.
  - B. ROM.
  - C. cache.
  - D. hard disk.
6. The MOST appropriate computer system used for storing and processing information of large banks is a
- A. minicomputer.
  - B. supercomputer.
  - C. microcomputer.
  - D. mainframe computer.

7. A software that is used as an interface between user and machine is an example of a/ an
- A. device driver.
  - B. operating system.
  - C. language translator.
  - D. entertainment software.
8. The examples of manual data entry devices are
- A. interactive whiteboards and touchscreens.
  - B. quick response code readers and touchscreens.
  - C. interactive whiteboards and optical character readers.
  - D. optical character readers and quick response code readers.
9. In contrast to the capacitive and the resistive touch screen technologies, the infrared technology
- A. is the most expensive technology.
  - B. is least durable than other two technologies.
  - C. has poor screen visibility in bright sunlight.
  - D. uses polyester on the upper layer and glass on the lower layer of the screen.
10. If a person wants to use a software on trial basis before purchasing it, then the type of software used will be
- A. freeware.
  - B. firmware.
  - C. shareware.
  - D. open source software.
11. Which of the following memories, can a CPU directly communicate with?
- A. Register
  - B. CD-ROM
  - C. DVD-ROM
  - D. USB Flash Drive
12. In contrast to the primary memory, the secondary memory
- A. is costly.
  - B. is volatile in nature.
  - C. is accessed by I/O channels.
  - D. always has a lower storage capacity.

13. Omar stored a data of 5 GB on an optical storage media. Later on, he stored an additional data of 3 GB on the same media.

In the given scenario, the type of optical storage is a

- A. DVD-R
- B. DVD-RW
- C. CD-ROM
- D. DVD-ROM

14. There are three types of cache memory, i.e., L1, L2 and L3.

Which of the following options CORRECTLY determines the precise locations of these cache memories?

	Microprocessor Chip	Motherboard
A	L1 and L2	L3
B	L1	L2 and L3
C	L2 and L3	L1
D	L3	L1 and L2

15. How many kibibytes are there in four mebibytes?

- A. 2000
- B. 2048
- C. 4000
- D. 4096

16. In binary number system, if 1.5KB of memory is converted into bits, then the result will be

- A. 8000 bits.
- B. 8192 bits.
- C. 12000 bits.
- D. 12288 bits.

17. An example of a solid state storage device is a

- A. hard disk.
- B. CD-ROM.
- C. DVD-RAM.
- D. secure digital card.

18. One of the types of non-volatile memory is

- A. Cache.
- B. SRAM.
- C. DRAM.
- D. PROM.

19. Primary memory is a part of the computer system that holds data and instructions for processing. It is mainly used by the system at startup and to run various types of programs such as operating system.

The given statement refers to all of the following types of memory EXCEPT

- A. RAM.
  - B. ROM.
  - C. flash memory.
  - D. cache memory.
20. Data transfer instruction is used to transfer data between the
- A. RAM and I/O.
  - B. I/O and hard disk.
  - C. register and RAM.
  - D. register and hard disk.
21. Consider the given table that shows four memory addresses and the content stored in them.

Memory Address	Content
10101	11000011
10110	11010010
10111	11011100
11000	10001001

If a program counter (PC) holds the address 10110 at the beginning of the fetch cycle, then the content stored in the given registers would be

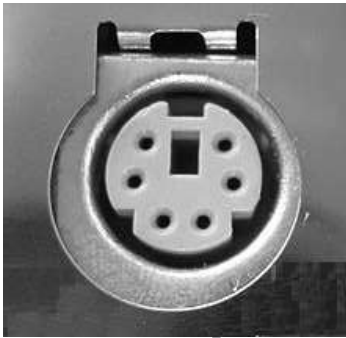
	Memory Address Register	Memory Data Register	Instruction Register
A	10110	11010010	11010010
B	10111	11011100	11011100
C	11010010	11010010	10110
D	11011100	11011100	10111

22. The CORRECT categorisation of the examples of CPU instructions is

	Data Transfer Instruction	Data Processing Instruction	Program Control Instruction
A	LOAD	DIV	LOOP
B	LOOP	DIV	LOAD
C	LOAD	LOOP	DIV
D	DIV	LOAD	LOOP

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23. All of the following are the components of the central processing unit EXCEPT
- A. registers.
  - B. system unit.
  - C. control unit.
  - D. internal buses.
24. The examples of general-purpose registers are the
- A. base register and counter register.
  - B. data register and instruction register.
  - C. instruction register and accumulator register.
  - D. accumulator register and memory address register.
25. If the op-code of a microprocessor consists of 6 bits, then how many distinct operations can be performed by the device?
- A. 6
  - B. 16
  - C. 32
  - D. 64
26. The THREE main components in a system unit are
- A. casing, mouse and monitor.
  - B. monitor, keyboard and mouse.
  - C. casing, power supply and motherboard.
  - D. keyboard, power supply and motherboard.
27. Given is the image of a computer port.



The name of this port is a/ an

- A. PS/2 port.
- B. serial port.
- C. HDMI port.
- D. fire wire port.

28. An integrated graphic card uses some of the computer's memory when displaying heavy graphics. This memory is a
- A. RAM.
  - B. ROM.
  - C. flash memory.
  - D. magnetic storage.
29. How many types of modems are there?
- A. Two
  - B. Three
  - C. Four
  - D. Five
30. Using the mobile data, Shams shared a picture with his friend who was sitting in the same room. Both friends use different mobile service providers. The network created between Shams and his friend while transferring the picture is an example of a
- A. wide area network.
  - B. local area network.
  - C. near-me-area network.
  - D. personal area network.
31. A topology in which all nodes are directly connected to each other is the
- A. bus topology.
  - B. star topology.
  - C. ring topology.
  - D. mesh topology.
32. A topology which is integration of various star topologies together in a single bus is a
- A. bus topology.
  - B. star topology.
  - C. tree topology.
  - D. mesh topology.
33. Consider the given protocols:
- I. TCP
  - II. ICMP
  - III. UDP
  - IV. IGMP

The protocols that work on the transport layer of OSI model are

- A. I and II.
- B. I and III.
- C. II and IV.
- D. III and IV.

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34. Data at each level is generally termed as protocol data unit (PDU).

The unit at the data link layer is termed as

- A. a segment.
- B. a packet.
- C. a frame.
- D. bits.

35. Manzoor has moved to a new city for employment. The nature of his job requires him to travel around the city and enter data using his company's website.

Which of the following modes of communication is PRIMARILY needed to be used in the given situation?

- A. Wi-Fi
- B. Bluetooth
- C. WiMAX
- D. Infra-red

36. Which of the following is/ are based on the concept of line of sight communication?

- I. Communication via Wi-Fi
- II. Communication via Satellite
- III. Communication via Bluetooth

- A. I only
- B. II only
- C. I and III
- D. II and III

37. The network in which users can be added without changing the physical connections of the network is a/ an

- A. infra-red network.
- B. optic fibre network.
- C. coaxial cable network.
- D. telephone line network.

38. All of the following elements may weaken the wireless signals EXCEPT

- A. buildings.
- B. bad weather.
- C. long distance.
- D. guided media.



39. In a cellular communication, a call is made from mobile phone X to mobile phone Y. Based on the given situation, mobile phone X FIRST gets connected to the
- A. base station.
  - B. switching node.
  - C. mobile phone Y.
  - D. landline network.

40. All of the following are the advantages of database management system EXCEPT
- A. data redundancy.
  - B. data consistency.
  - C. data recovery.
  - D. data security.

41. Consider the given uses:

- Minimises the duplication of information
- Safeguards the database against certain anomalies
- Divides large tables into small well organised tables

In terms of database, which of the following includes all the given uses?

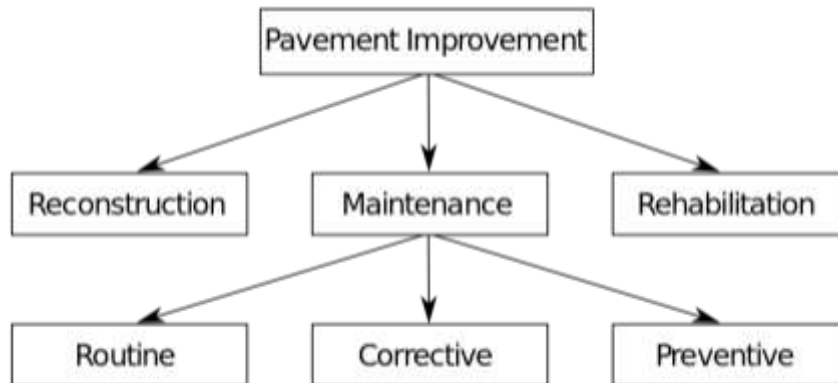
- A. Modality
  - B. Cardinality
  - C. Relationship
  - D. Normalisation
42. Consider the given image of an entity relationship diagram (ERD).



The modality and cardinality illustrated in the given image can be interpreted as

	At Table X		At Table Y	
	Modality	Cardinality	Modality	Cardinality
A	One	Zero	Many	One
B	Zero	One	One	Many
C	One	Zero	One	Many
D	Zero	One	Many	One

43. Which of the following data modelling types addresses the unique requirements of a specific business?
- A. Conceptual Data Modelling
  - B. Enterprise Data Modelling
  - C. Physical Data Modelling
  - D. Logical Data Modelling
44. The given diagram shows an example of a database model.



Bases on the given information, the database model can be identified as a/ an

- A. network database model.
  - B. hierarchy database model.
  - C. object-oriented database model.
  - D. object relational database model.
45. A freelancer has developed a library management database system with the following entities: Books, Readers, Publishers, Authentication\_System, Reports and Staff
- Which of the following is a well-defined relationship between the Authentication\_System entity and the Staff entity?
- A. One-to-one
  - B. One-to-many
  - C. Many-to-one
  - D. Many-to-many
46. The MS Access query that will fetch records that consist of **CarModel** and **CarPrice** fields from a database table named as **Cars** is
- A. Select CarModel, CarPrice From Cars;
  - B. Select \*CarModel, \*CarPrice From Cars;
  - C. Select CarModel AND CarPrice From Cars;
  - D. Select \*(CarModel AND CarPrice) From Cars;

47. The MS Access query that will fetch all the records of clients living in Karachi from a database table named as **Clients** is
- A. Select \* From Clients Where City = 'Karachi';
  - B. Select \* From Clients Where City = \$Karachi;
  - C. Select \* From Karachi Where Table = Clients;
  - D. Select \* From City = Karachi Where Table = Clients;
48. The MS Access query that will fetch all the records of clients having monthly income between 50,000 and 75,000 rupees from a database table named as **Clients** is
- A. Select \* From Clients Where Income > 50,000 OR Income < 75,000;
  - B. Select \* From Clients Where Income > 50000 AND Income < 75000;
  - C. Select \* From Income = 50000 AND Income = 75000 Where Table = Clients;
  - D. Select \* From Income >= 50000 AND Income <= 75000 Where Table = Clients;
49. Fatima has created a database table named as **Stores**. She wants to insert a column named as **ContactNumber**.
- The query that she should use to do this task is
- A. Alter Table Stores Add ContactNumber Int;
  - B. Alter Table Stores Include ContactNumber Int;
  - C. Alter Stores Table Append ContactNumber Int;
  - D. Alter Insert ContactNumber Int Where Table = Stores;
50. The MS Access query that will delete a database table named as **Class** is
- A. Drop Table Class;
  - B. Erase Table Class;
  - C. Delete Table Class;
  - D. Remove Table Class;

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