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# RIYAS RUSHARD

GCE AL ICT 2023 **REVISION**  
MERIT TEST **PAPER** | PACK 05

- 01)** Who invented the Analytical Engine?  
 (1) Alan Turing (2) Charles Babbage (3) Bill Gates  
 (4) Von Neumann (5) John Vincent Atanasoff
- 02)** Which of the following decimal number is equivalent to the two's complement binary number 11000110?  
 (1) -85. (2) -58. (3) -56 (4) -78. (5) -68
- 03)** Assume that two bits are given to a half adder. Which of the following statement is correct with respect to the output of the half adder?  
 (1) It always produces 00 as the output.  
 (2) Output becomes 0 when both A and B are set to 1  
 (3) When A is 1 and B is 0, it gives 0 as the output.  
 (4) When the values of A and B are set to 0 it produces  $10_2$  as the output  
 (5) When the values of A and B are set to 1 it produces  $10_2$  as the output
- 04)** A circuit is developed by connecting a full adder to a half adder to add three bits. Overflow (carry out) of the full adder is given to the half adder as an input. Which of the following is correct?  
 (1) The circuit produces correct results when the most significant bit is zero.  
 (2) It gives correct results when the most significant bit is 1.  
 (3) It always produces correct results.  
 (4) Information given is not enough to determine its output.  
 (5) The most significant bit has no influence on its output.
- 05)** Which of the following statements about the seven-state process transition diagram is true?  
 (1) A process in **running** state will change its status to the **ready** state when it generates an I/O event.  
 (2) The processes in the **Blocked/Suspended** state are in the main memory.  
 (3) The status of a process in the **blocked** state should change to **running** after completion of the blocked event  
 (4) The status of a process in the **running** state can be changed either to **exit** or **ready** states only.  
 (5) When a process is created its status should be running
- 06)** Which of the following statement is true about computers developed during the past?  
 (1) Transistors are used in the first generation computers.  
 (2) Assembly languages are used as the programming language in the first generation computers.  
 (3) Vacuum tubes are used in the second generation computers.  
 (4) Integrated circuits are used in the third generation computers.  
 (5) Assembly language programs cannot be executed on the third generation computers.
- 07)**  $7E_{16} + 101101_2$  is equal to,  
 (1)  $011101011_2$  (2)  $175_{10}$  (3)  $AA_{16}$   
 (4)  $173_{10}$  (5)  $AB_{16}$
- 08)** Which of the following is correct with respect to the off-the-shelf software?  
 (1) They always satisfies all user requirements.  
 (2) Their prices are always very high.  
 (3) The cost for the development of an off-the-shelf product is effectively split across numerous buyers.  
 (4) They are designed for individual client's requirements.  
 (5) The risk of failure is very high.
- 09)** Which of the following characteristics of a good test case binds system requirements to a test case?  
 (1) Accuracy (2) Economy (3) Traceability  
 (4) Repeatability (5) Reusability

- 10)** Which of the following is correct regarding system deployment?
- (1) User training is part of system deployment.
  - (2) It is a process of testing system at the developer's location.
  - (3) Unit testing is one of the main activities in system deployment.
  - (4) Integration testing is done in system deployment.
  - (5) It is the act of copying ONLY the software developed from developer's location to client's location.
- 11)** Consider the following components:
- A – Input controls
  - B – Navigational components
  - C – Informational components
  - D – Container
- Which of the above are components of an user interface?
- (1) A and B only
  - (2) B and D only
  - (3) A, B and C only
  - (4) B, C and D only
  - (5) All A, B, C and D
- 12)** Consider the following statements about operating systems:
- A – An operating system is a program
  - B – An operating system is loaded to the main memory during the booting process
  - C – In desktop computers Operating systems are stored in ROM
- Which of the above is/are correct?
- (1) A only
  - (2) B only
  - (3) C only
  - (4) A and B only
  - (5) All A, B and C
- 13)** Consider the following functions:
- A – Loading a program from the secondary storage to the main memory
  - B – Managing the hard disk space
  - C – Finding the number of characters in a text file
- Which of the above is/ are the main function(s) of an operating system
- (1) A only
  - (2) B only
  - (3) C only
  - (4) A and B only
  - (5) All A, B and C
- 14)** Consider the following:
- A – System boundary
  - B – External entities
  - C – Major information flows between the entities and the system
  - D – Flow of data between external entities and the processes
- Which of the above are components of a context diagram
- (1) A and B only
  - (2) B and D only
  - (3) A, B and C only
  - (4) B, C and D only
  - (5) All A, B, C and D
- 15)** Economic feasibility of a system .....
- (1) Involves with cost/ benefit analysis.
  - (2) Evaluates hardware and software.
  - (3) Determines whether the organization's needs can be met by implementing the proposed system.
  - (4) Estimates the time required for the completion of the project.
  - (5) Determines the technical resources required for the project.

Consider the following relations to answer questions 16 to 18:

**teacher** ( teacher\_id , teacher\_name , date\_of\_birth , author\_id)

**book** (book\_id , book\_name)

**author** ( author\_id , author\_name , email\_address)

**authorOfbook** (author\_id , book\_id)

**publisher** (publisher\_id , publisher\_name , contact\_number , email)

**publisherOfbook** (publisher\_id , book\_id)

Where *teacher\_id* , *book\_id* , *author\_id* and *publisher\_id* are unique attributes in the relation teacher , book , author and publisher respectively.

16) Which of the following statement is correct with respect to the above relations?

- (1) teacher\_id is a part of the primary key in teacher relation.
- (2) author\_id in teacher relation can take NULL value.
- (3) author\_id and book\_id in authorOfbook relation can take NULL value.
- (4) book\_id is a candidate key of publisherOfbook relation.
- (5) author\_name in author relation is a candidate key.

17) Assume that the above relations are converted into tables in a relational database. The following SQL query is executed on the database:

```
SELECT * FROM teacher WHERE author_id is NOT NULL
```

Which of the following statement is correct regarding the output of the above SQL query?

- (1) It cannot be an empty table
- (2) The tables teacher and author are used to produce the output
- (3) The attribute author\_name is in it
- (4) The attribute publisher\_name is in it
- (5) All teacher records with a value in the author\_id attribute of teacher table are in the output

18) Consider the following statements regarding the Data Definition Language (DDL) used to create the table publisherOfbook while maintaining data integrity

A – It has a foreign key constraint

B – It has a primary key constraint

C – It has a domain constraint

Which of the above statement(s) is/are correct?

- (1) A only
- (2) A and B only
- (3) A and C only
- (4) B and C only
- (5) All A, B and C

19) Consider the following relation:

**Student** (index\_no , student\_name , date\_of\_birth , hobbies)

Where index\_no is an unique attribute and hobbies is multivalued attribute with 2 values in maximum

Which of the following relation/s represents the above Student relation in first normal form?

- (1) Student (index\_no , student\_name , date\_of\_birth , hobby\_1)
- (2) Student (index\_no , student\_name , date\_of\_birth , hobby\_1 , hobby\_2)
- (3) Student (index\_no , student\_name , date\_of\_birth) and hobby (hobby\_1 , hobby\_2)
- (4) Student (index\_no , student\_name , date\_of\_birth) and hobby (hobby\_id , hobby\_1 , hobby\_2)
- (5) Student (index\_no , student\_name , hobby\_id), hobby (hobby\_id , hobby\_name) and student\_hobby (index\_no , hobby\_id)

20) Suppose you have the following IP address 192.16.5.133/29. What are the number of bits needed to identify the network, and the number of bits needed to identify the host:

- (1) 29 bits and 3 bits
- (2) 28 bits and 3 bits
- (3) 30 bits and 2 bits
- (4) 28 bits and 4 bits
- (5) 29 bits and 4 bits

- 21)** In a communication network, when a message arrives at its destination, in order to deliver it to the correct application program running at the application layer, which of the following address must be consulted?  
 (1) MAC address (2) IP address (3) port address  
 (4) DNS server (5) Application address
- 22)** Which of the following packet field is updated, during normal IP packet forwarding in a router?  
 (1) Time To Live (TTL) value (4) Source MAC address.  
 (2) Source IP address (5) Destination address  
 (3) Destination IP address
- 23)** Which of the following is a benefit of ICT for the society?  
 (1) Student can access content at any time.  
 (2) Student can access content from anywhere .  
 (3) Provide equal educational opportunities for everyone.  
 (4) Supports collaborative learning.  
 (5) Allows anyone to publish anything.
- 24)** What are the basic components of a computer systems?  
 (1) Input, Output, Processing unit  
 (2) Input, Output, Processing unit, Storage, users  
 (3) Input, Output, Processing unit, Storage  
 (4) Keyboard, Monitor, CPU, RAM  
 (5) Keyboard, Monitor, CPU, RAM, ROM
- 25)** Which of the followings is correct with respect to big data?  
 (1) High volume is one of the features of big data.  
 (2) Big data is always structured.  
 (3) Data generated through social media such as Facebook cannot be considered as big data.  
 (4) A Management Information System (MIS) is always required to collect big data.  
 (5) Python is not a suitable programming language to manage big data.
- 26)** Which of the following is the most widely used requirement gathering method in a system development system?  
 (1) Observation (4) Collecting information from documents.  
 (2) Questionnaire (5) Engage in real work.  
 (3) Interviews
- 27)** Consider the following activities:  
 A – Determine whether a project is economically, socially, technologically, and organizationally feasible  
 B – Find facts and ascertain the end user requirements of the system  
 C – Determine how the end users would operate a system  
 Which of the above activities are done during the system analysis stage in a systems development project?  
 (1) A only (4) B and C only  
 (2) A and B only (5) All A , B and C  
 (3) A and C only
- 28)** Which of the following database system model in accordance with Parent-Child relationship in data processing?  
 (1) Hierarchical (4) Network.  
 (2) Object Oriented (5) Relational  
 (3) Structural

29) Consider the following statements:

A – An Expert System is a Decision Support System

B – In an Expert System the reasons for an answer can be derived

C – Online Medical Support System is an example for Expert Systems

D – An Expert System has Inference Engine which updates it's knowledge base

Which of the above statement/s is/are correct regarding Expert Systems in Artificial Intelligence?

(1) A and D only

(4) A , B and D only

(2) B and C only

(5) A , C and D only

(3) A , B and C only

30) Which of the following devices sends data packets only to receiving device?

(1) Hub

(4) Repeater

(2) Switch

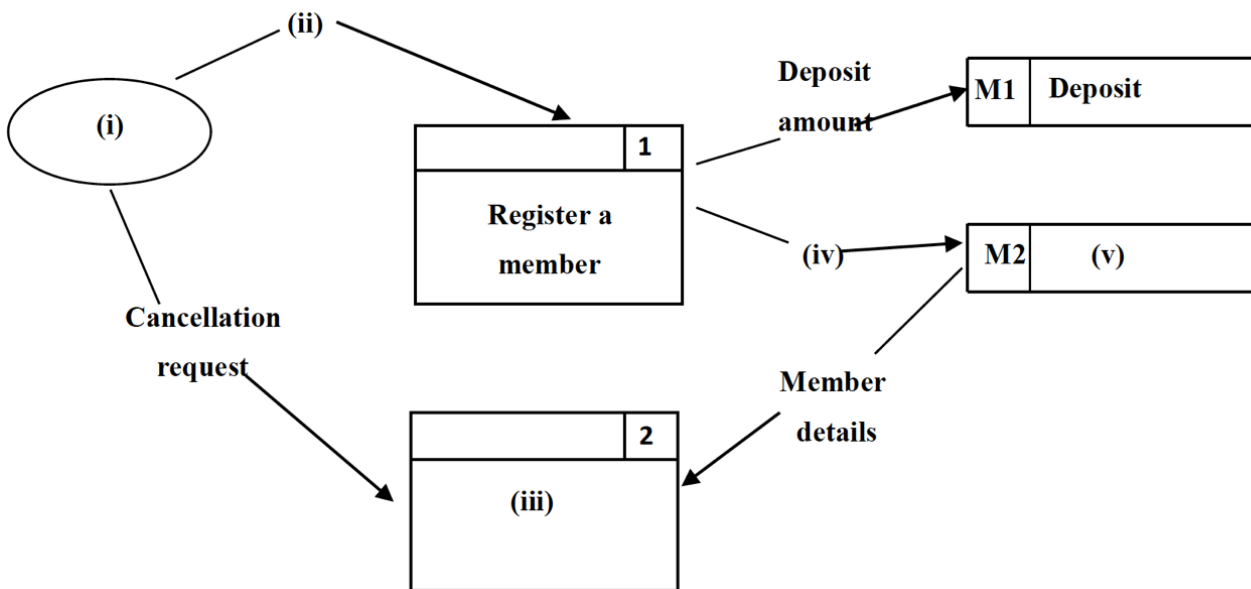
(5) Modem

(3) Bridge

31) Consider the following scenario.

A clerk of a library registers for members. In some circumstances, he /she will cancel the registration.

Membership details are stored in a member file. A member may cancel his / her membership in any time.



Complete the above-mentioned partial data flow diagram by identifying the missing elements. Write your answers below.

i

v

ii

iii

iv



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