

## IBPS SO IT Officer Mains Memory Based 2025 Held on 09 November 2025

**Q1.** In JavaScript, null is a primitive value, but its type is reported as:

- (a) null
- (b) undefined
- (c) object
- (d) number
- (e) string

**Ans.(c)**

**Q2.** In Business Continuity Planning, a Disaster Recovery Plan is part of which international standard?

- (a) ISO 27001
- (b) ISO 31000
- (c) ISO 9001
- (d) ISO 22301
- (e) ISO/IEC 20000

**Ans.(d)**

**Q3.** The <template> tag in HTML is not used for:

- (a) Holding reusable HTML blocks
- (b) Defining HTML to be used later with JavaScript
- (c) Rendering content immediately when page loads
- (d) Keeping code hidden from display
- (e) Delaying rendering until needed

**Ans.(c)**

**Q4.** In Disaster Recovery Planning, which term refers to the maximum acceptable data loss measured in terms of time?

- (a) RTO
- (b) RPO
- (c) MTTF
- (d) DRP
- (e) BCP

**Ans.(b)**

**Q5.** Three processes P1, P2, and P3 arrive at time 0 with burst times of 6, 2, and 4 units respectively. Using Non-Preemptive SJF Scheduling, what is the Turnaround Time (TAT) for P3?

- (a) 2 units
- (b) 4 units
- (c) 6 units
- (d) 8 units
- (e) 10 units

**Ans.(c)**

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**Q6.** What is the output of the following JavaScript code?

```
console.log(parseInt("10.5") + parseInt("5.7") + "2");
```

- (a) 152
- (b) 17.7
- (c) 16.2
- (d) 152.7
- (e) NaN

**Ans.(a)**

**Q7.** External fragmentation is commonly associated with which memory allocation technique?

- (a) Contiguous memory allocation
- (b) Paging
- (c) Segmentation with paging
- (d) Non-contiguous memory allocation
- (e) Virtual memory

**Ans.(a)**

**Q8.** In email handling, what is the function of a user agent?

- (a) It transfers emails between different mail servers
- (b) It stores email messages permanently on a server
- (c) It provides an interface to the user to compose, send, and read emails
- (d) It filters spam emails before delivery
- (e) It encrypts messages for secure communication

**Ans.(c)**

**Q9.** What is the primary purpose of sequence numbers in the TCP protocol?

- (a) To count the number of routers in a path
- (b) To detect congestion in the network
- (c) To identify the receiver's port number
- (d) To ensure data is delivered in correct order
- (e) To encrypt data before transmission

**Ans.(d)**

**Q10.** A network has an MTU of 1500 bits. A data packet of 2000 bits needs to be transmitted. Assuming no header overhead, how many fragments will be created and what will be the size of each?

- (a) 1 fragment of 2000 bits
- (b) 2 fragments: one of 1500 bits and one of 500 bits
- (c) 3 fragments: each of 666.67 bits
- (d) 2 fragments: each of 1000 bits
- (e) None of the above

**Ans.(b)**

**Q11.** What does a router do if it receives an IP packet that is larger than the MTU of the outgoing link and the DF (Don't Fragment) bit is set?

- (a) Fragments the packet and forwards it
- (b) Drops the packet and sends an ICMP "Fragmentation Needed" message
- (c) Forwards the packet unchanged to the next router
- (d) Reassembles the packet and resends it in parts
- (e) Compresses the packet and resends it on the link

**Ans.(b)**

**Q12.** Which sequence does a DNS resolver follow to translate a domain name into its corresponding IP address?

- (a) TLD server → root server → authoritative server → returns IP address
- (b) Authoritative server → TLD server → root server → returns IP address
- (c) Root server → TLD server → authoritative server → returns IP address
- (d) TLD server → authoritative server → root server → returns IP address
- (e) None of the above

**Ans.(c)**

**Q13.** Which of the following is the standard used for digital certificates in a public key infrastructure?

- (a) SHA-256
- (b) X.509
- (c) TLS 1.2
- (d) RSA
- (e) AES

**Ans.(b)**

**Q14.** In Asymmetric Encryption, which key is used to encrypt the message before sending?

- (a) Sender's private key
- (b) Receiver's public key
- (c) Sender's public key
- (d) Receiver's private key
- (e) Shared secret key

**Ans.(b)**

**Q15.** Match the Access Control Models in Column A with their Features in Column B:

Column A – Access Control Models      Column B – Features

A. Zero Trust

1. Based on roles in an organization

B. DAC (Discretionary AC)

2. Based on security labels/classification

C. MAC (Mandatory AC)

3. Access decided by the data owner

D. RBAC (Role-Based AC)

4. Never trust, always verify (assume breach)

A. A-4, B-3, C-2, D-1

(b) A-1, B-2, C-3, D-4

(c) A-3, B-4, C-1, D-2

(d) A-2, B-1, C-4, D-3

(e) A-4, B-1, C-3, D-2

**Ans.(a)**

**Q16.** Which of the following best describes a Watering Hole Attack?

(a) Infecting software on a user's local system through email attachments

(b) Redirecting traffic from secure websites to fake login pages

(c) Infecting a commonly visited website to target a specific group of users

(d) Sending mass phishing emails to unknown users

(e) Encrypting files and demanding ransom for access

**Ans.(c)**

**Q17.** Which of the following techniques helps prevent SQL Injection attacks?

(a) Running SQL queries in a loop

(b) Giving admin rights to all users

(c) Validating and sanitizing user inputs

(d) Using simple and open SQL queries

(e) Disabling the login screen

**Ans.(c)**

**Q18.** What is the value of y after executing the following C code?

```
#include <stdio.h>
int main()
{
int x = 10;
printf("%d %d", x++, ++x);
return 0;
}
```

(a) 10 12

(b) 11 12

(c) 10 11

(d) 12 12

(e) Undefined behavior

**Ans.(e)**

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**Q19.** In C programming, which file handling function is used to reposition the file pointer?

- (a) fread()
- (b) fwrite()
- (c) fprintf()
- (d) fseek()
- (e) fclose()

**Ans.(d)**

**Q20.** What happens if a Java class has no constructors defined?

- (a) The compiler throws an error
- (b) The compiler adds a default constructor automatically
- (c) A parameterized constructor is added by default
- (d) The object cannot be created using new keyword
- (e) Only static methods can be accessed

**Ans.(b)**

**Q21.** Which of the following regular expressions will match the strings “cat” and “bat”, but not “at”?

- (a) `^[cb]at$`
- (b) `[cat|bat]`
- (c) `^at$`
- (d) `^[cb]at$`
- (e) `.*at$`

**Ans.(d)**

**Q22.** Which exception is thrown in Java when a class is not found at runtime?

- (a) NullPointerException
- (b) ClassNotFoundException
- (c) IOException
- (d) ArithmeticException
- (e) NoClassDefFoundError

**Ans.(b)**

**Q23.** Which of the following statements is correct with respect to method binding in Java?

- (a) Dynamic binding is used for method overloading, which is resolved at runtime
- (b) Static binding is used for method overriding and is more flexible than dynamic binding
- (c) Static binding is faster than dynamic binding, and dynamic binding is not applicable to method overloading
- (d) Both static and dynamic binding are resolved at runtime
- (e) Method overloading in Java is resolved using dynamic dispatch

**Ans.(c)**

**Q24.** In object-oriented programming, a subclass inherits all members of its base class except:

- (a) Public members from the base class
- (b) Protected members from the base class

- (c) Private members from the base class
- (d) Static members from the base class
- (e) Friend functions of the base class

**Ans.(c)**

**Q25.** In Java 8 or later, which memory area is used for storing class metadata at runtime?

- (a) Stack
- (b) Heap
- (c) Metaspace
- (d) PermGen
- (e) None of the above

**Ans.(c)**

**Q26.** In C++, what does the this pointer refer to?

- (a) Base class
- (b) Null pointer
- (c) Current object
- (d) Static member
- (e) Class name

**Ans.(c)**

**Q27.** Which algorithm finds the Minimum Spanning Tree by selecting edges in increasing order of weight?

- (a) Prim's Algorithm
- (b) Dijkstra's Algorithm
- (c) Kruskal's Algorithm
- (d) Floyd-Warshall Algorithm
- (e) Bellman-Ford Algorithm

**Ans.(c)**

**Q28.** In which case is Insertion Sort better than Quick Sort and Merge Sort?

- (a) Large, random input
- (b) Large input, needs stable sort
- (c) Small, nearly sorted, uses less memory
- (d) Sorting linked lists
- (e) Parallel sorting of big data

**Ans.(c)**

**Q29.** Which of the following sorting algorithms does not use comparison operations?

- (a) Quick Sort
- (b) Merge Sort
- (c) Radix Sort
- (d) Heap Sort
- (e) Insertion Sort

**Ans.(c)**

**Q30.** Which of the following is a graph traversal technique?

- (a) DFS
- (b) Stack
- (c) Heap
- (d) Priority Queue
- (e) None of the above

**Ans.(a)**

**Q31.** What is the space complexity of a tail-recursive implementation of Quick Sort on an array of size  $n$ ?

- (a)  $O(1)$
- (b)  $O(n)$
- (c)  $O(\log n)$
- (d)  $O(n \log n)$
- (e)  $O(n^2)$

**Ans.(c)**

**Q32.** In an ETL process, which phase is primarily responsible for refining, converting, or preparing data for further processing or analysis?

- (a) Extract
- (b) Load
- (c) Collect
- (d) Transform
- (e) Analyze

**Ans.(d)**

**Q33.** Which international standard defines the processes for the software development lifecycle, and is adopted by BIS?

- (a) ISO/IEC 9126
- (b) ISO/IEC 12207
- (c) ISO 27001
- (d) ISO 9001
- (e) ISO/IEC 15504

**Ans.(b)**

**Q34.** What does the term “Internet of Things (IoT)” primarily refer to?

- (a) A globally distributed ecosystem of AI-enabled embedded systems that autonomously interact with big data engines in real-time through federated learning models.
- (b) A dynamic framework where cyber-physical systems utilize blockchain protocols and AI agents to perform autonomous decision-making in fog computing layers.
- (c) An interconnected network of physical objects integrated with sensors, actuators, and communication protocols, designed to collect, exchange, and act on real-world data over the internet.
- (d) A virtualized cloud infrastructure that supports containerized microservices interacting with machine learning algorithms for large-scale IoT deployment over 5G.

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(e) A secure hardware-software ecosystem focused on real-time threat detection and intrusion prevention in smart connected devices using biometric sensors and cryptographic algorithms.

**Ans.(c)**

**Q35.** Which lightweight messaging protocol, designed for unreliable networks and constrained devices, uses a publish/subscribe model to enable efficient data transfer in Internet of Things environments?

- (a) HTTP
- (b) FTP
- (c) MQTT
- (d) TCP
- (e) SMTP

**Ans.(c)**

**Q36.** Which of the following tools is not commonly used for data visualization?

- (a) Matplotlib
- (b) Google Data Studio
- (c) Tableau
- (d) Power BI
- (e) NumPy

**Ans.(e)**

**Q37.** Google Cloud Firestore is an example of which cloud service model?

- (a) IaaS
- (b) PaaS
- (c) SaaS
- (d) DBaaS
- (e) BaaS

**Ans.(d)**

**Q38.** Which HTTP status code represents an Internal Server Error?

- (a) 200
- (b) 301
- (c) 404
- (d) 500
- (e) 403

**Ans.(d)**

**Q39.** Which of the following is mainly used for non-repudiation in cybersecurity?

- (a) Firewall
- (b) Encryption
- (c) Digital certificate
- (d) Digital signature
- (e) Hash function

**Ans.(d)**

**Q40.** What is latent space in Generative AI?

- (a) Structured input features directly fed into the model
- (b) Intermediary abstract space
- (c) Final output space generated after decoding
- (d) Pre-processed training dataset
- (e) Hidden memory layer used for storing learned weights

**Ans.(b)**

**Q41.** Which of the following is not a supervised machine learning algorithm?

- (a) Decision Tree
- (b) K-Nearest Neighbors
- (c) Linear Regression
- (d) K-Means Clustering
- (e) Support Vector Machine

**Ans.(d)**

**Q42.** Which Python library is commonly used for data mining and machine learning tasks?

- (a) TensorFlow
- (b) NumPy
- (c) Pandas
- (d) Scikit-learn
- (e) Matplotlib

**Ans.(d)**

**Q43.** In BCNF, what should be true about the determinant in every functional dependency?

- (a) Determinant can be any attribute
- (b) Determinant must be a primary key
- (c) Determinant must be a candidate key
- (d) Determinant must be a foreign key
- (e) Determinant can be a composite key or atomic key

**Ans.(c)**

**Q44.** A bank account starts with a balance of 1500. A transaction begins, a SAVEPOINT is set, 100 is added to the account, then a ROLLBACK TO SAVEPOINT is performed, and finally a COMMIT is issued. What is the final account balance?

- (a) Account increases
- (b) Account decreases
- (c) Account remains same
- (d) Account becomes 0
- (e) None of the above

**Ans.(c)**

**Q45.** In data warehousing, a cuboid is used to represent:

- (a) Summarized data from the data cube
- (b) Raw transactional data without aggregation
- (c) A single dimension table
- (d) Temporary staging data
- (e) None of the above

**Ans.(a)**

**Q46.** Which of the following operations cannot be directly performed using Tuple Relational Calculus, compared to operations on relational tables?

- (a) Projection
- (b) Selection
- (c) Join
- (d) Aggregation
- (e) Cartesian Product

**Ans.(d)**

**Q47.** What is the primary purpose of domain constraints in a relational database?

- (a) It assigns rules about which values are allowed to be entered in a column.
- (b) It makes sure that no NULL values are allowed in any row.
- (c) It ensures that every row has a unique primary key.
- (d) It links two tables using common columns.
- (e) It automatically fills a default value when none is provided.

**Ans.(a)**

**Q48.** Which of the following is not a valid data type in the C++ programming language?

- (a) Float
- (b) Double
- (c) Int
- (d) Real
- (e) Char

**Ans.(d)**

**Q49.** In object-oriented programming, what is the correct definition of a class?

- (a) An instance allocated in memory
- (b) A data type that defines both properties and behaviors
- (c) A container for functions only
- (d) A blueprint containing method signatures only
- (e) A variable holder for all object states

**Ans.(b)**

**Q50.** Which concurrency control protocol prevents deadlock and ensures serializability?

- (a) 2PL
- (b) Optimistic locking protocol
- (c) Timestamp ordering protocol

- (d) Strict 2PL
- (e) Shared locking protocol

**Ans.(c)**

**Q51.** A user transfers money from their bank account to a friend. The amount is debited from their account, but due to a system failure, the money is not credited to the friend's account. Which database property is violated in this situation?

- (a) Consistency
- (b) Atomicity
- (c) Isolation
- (d) Durability
- (e) Integrity

**Ans.(b)**

**Q52.** Which of the following set operations represents: "All rows that are in  $R_1$  but not in  $R_2$ "?

- (a)  $R_1 \cup R_2$
- (b)  $R_1 \cap R_2$
- (c)  $R_2 - R_1$
- (d)  $R_1 - R_2$
- (e) None of the above

**Ans.(d)**

**Q53.** Which Linux command is used to display the current working directory?

- (a) dir
- (b) cd
- (c) pwd
- (d) ls -l
- (e) whoami

**Ans.(c)**

**Q54.** In Linux, which symbol or command is used to check the exit status of the last executed command?

- (a) \$@
- (b) \$\$
- (c) \$#
- (d) \$?
- (e) echo \$\$

**Ans.(d)**

**Q55.** In email communication, how are SMTP and POP3 different from each other?

- (a) SMTP is used to get emails; POP3 is used to send emails
- (b) SMTP secures the message; POP3 stores it permanently
- (c) SMTP is used to send emails; POP3 is used to download them
- (d) SMTP manages file transfers; POP3 manages attachments
- (e) Both protocols do the same work in email systems

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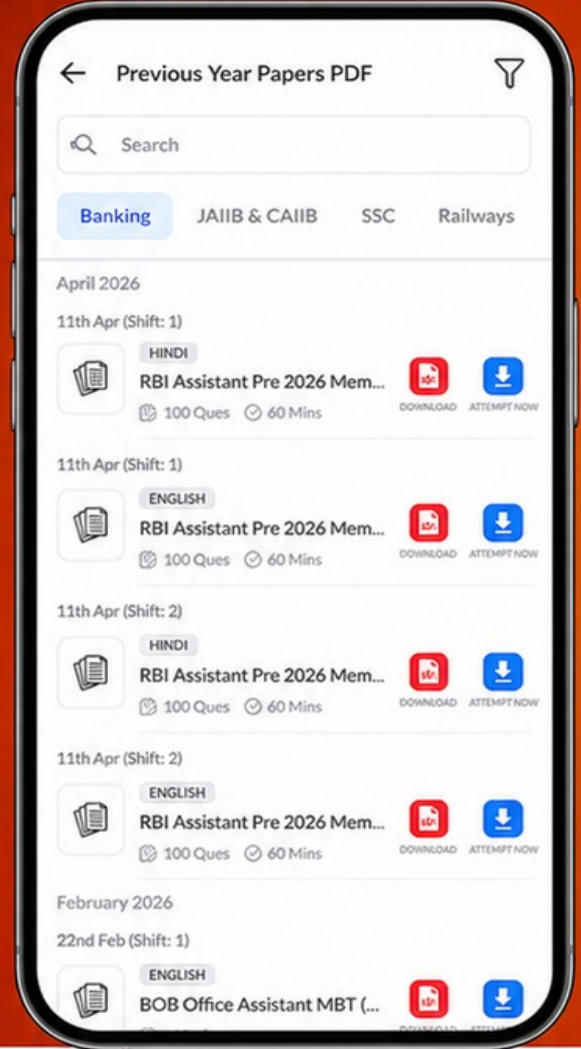
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**Ans.(c)**

**Q56.** What is the default port number used by RDP?

- (a) 3389
- (b) 3390
- (c) 3388
- (d) 1433
- (e) None of the above

**Ans.(a)**

**Q57.** To prevent infinite looping of packets in a network, a field in the IP header that is decremented at each router is called:

- (a) TTL
- (b) Hop Limit
- (c) Fragment Offset
- (d) Sequence Number
- (e) None of the above

**Ans.(a)**

**Q58.** What is the main purpose of a heuristic function in artificial intelligence?

- (a) Find the exact solution to the problem
- (b) Estimate the cost from a state to the goal
- (c) Explore all possible solutions exhaustively
- (d) Store and retrieve data efficiently
- (e) Avoid using search algorithms

**Ans.(b)**

**Q59.** Which SDLC model follows a sequential flow, where each phase must be completed before moving to the next?

- (a) Agile Model
- (b) Spiral Model
- (c) Waterfall Model
- (d) V-Model
- (e) Incremental Model

**Ans.(c)**

**Q60.** Which of the following is a built-in feature of IPv6 that is not mandatory in IPv4?

- (a) NAT
- (b) DHCP
- (c) IPsec encryption support
- (d) DNS
- (e) Static routing

**Ans.(c)**