



*Prepare 50% Faster*

***Previous Year Paper***  
***NABARD Grade A***  
***Computer/IT Officer***  
***2021***

1. What is the best case time complexity of merge sort?

- 1)  $O(n \cdot \log n)$
- 2)  $O(\log n)$
- 3)  $O(n)$
- 4) None of these
- 5) All of these

**Answer : (1)**

2. Which is not an IoT OS?

- 1) Contiki
- 2) FreeRTOS
- 3) Mbed OS
- 4) Google Chrome
- 5) None of these

**Answer : (4)**

3. **Fill the blank**

In K-Means algorithm, we calculate the distance between each point of the dataset to every \_\_\_\_\_ initialized.

- 1) centroid
- 2) Centre
- 3) Mean
- 4) Variance
- 5) None of these

**Answer : (1)**

4. Which is relational Database

- 1) MS Access
- 2) Struts
- 3) Oracle
- 4) Hibernate
- 5) None of these

**Answer : (3)**

5. In data warehouse, a fact table consists of

- 1) Measurements
- 2) Metrics
- 3) facts
- 4) All of the above.
- 5) None of these

**Answer : (4)**

6. State True or False

Kernel level thread cannot share the code segment.

- 1) True
- 2) False

**Answer : (1)**

7. State True or False

Semi-structured data is data that does not conform to a data model but has some structure. It lacks a fixed or rigid schema. It is the data that does not reside in a relational database but that has some organizational properties that make it easier to analyze. With some processes, we can store them in the relational database.

- 1) True
- 2) False

**Answer : (1)**

8. The latency of a network is

- 1) the time it takes for a data packet to be transferred from its source to the destination.
- 2) the time it takes for a data packet to be transferred from hop to the destination.
- 3) the time it takes for a data packet to be transferred from its source to the next router.
- 4) None
- 5) None of these

**Answer : (1)**

9. Which is computer object code?

- 1) Source code
- 2) Bytecode
- 3) JDK
- 4) None
- 5) All of these

**Answer : (2)**

10. Predict the output

```
list1 = ['physics', 'chemistry', 1997, 2000]
```

```
list2 = [1, 2, 3, 4, 5, 6, 7]
```

```
print "list1[0]: ", list1[0]
```

- 1) list1[1]: physics
- 2) list1[0]: physics
- 3) list1[2]: physics
- 4) None
- 5) All of these

**Answer : (3)**

**Direction:- Read the below passage and answer the questions**

First Come First Serve (FCFS) is an operating system scheduling algorithm that automatically executes queued requests and processes in order of their arrival. It is the easiest and simplest CPU scheduling algorithm. In this type of algorithm, processes which requests the CPU first get the CPU allocation first. This is managed with a FIFO queue. The full form of FCFS is First Come First Serve. As the process enters the ready queue, its PCB (Process Control Block) is linked with the tail of the queue and, when the CPU becomes free, it should be assigned to the process at the beginning of the queue.

11. Average waiting time of all process?

- 1) 8.5 ms
- 2) 9.5 ms
- 3) 9 ms
- 4) 4 ms
- 5) None of these

**Ans : 1) The average waiting time is calculated by taking the sum of all the waitings and dividing it by the number of processes.**

$$9+9+3+13+4+9+9+3+13 = 8.5 \text{ ms}$$

**Therefore the average waiting is 8.5 ms.**

12: State true or false

This scheduling algorithm is not ideal for time sharing systems.

- 1) True
- 2) False

**Ans : 1) Disadvantages of FCFS**

- **The non-preemptive nature of the algorithm makes other small processes wait until the current program completes.**
- **Short processes have to wait for a long time until the bigger process which arrives before it.**
- **The waiting time is usually high.**
- **This scheduling algorithm is not ideal for time sharing systems.**

13. \_\_\_\_\_ is the amount of time taken to fulfill the request by the process. It can be calculated by taking the difference between the completion time and the arriving time.

- 1) Turn around Time
- 2) Waiting Time
- 3) Response Time
- 4) Response Ratio
- 5) None of these

**Ans : 1) TAT**

**Direction:- Read the below passage and answer the questions**

Software testing is the process of making sure your software/app works as it should. There are various methods you can use to test your code, and each testing method has different requirements.

Software testing is integral to the process of building good software that works as it should. It also helps improve productivity and performance. Testing is an important part of the \_\_ (14) \_\_\_\_\_. (15) \_\_\_\_\_ is a software testing method that validates the system against the customer's requirements or specifications. \_\_ (16) \_\_\_\_\_ is a type of software testing that validates how each software unit performs and whether that specific piece of code does what it should. A unit is the smallest testable component of an application. \_\_\_\_\_ (17) \_\_\_\_\_ involves the process of testing integrated software. The aim is to evaluate the system's compliance with specify requirements.

14. Which is best fit for blank space 14?

- 1) Software Development Life Cycle (SDLC).
- 2) Waterfall model
- 3) Agile model
- 4) Market launch
- 5) None of these

**Ans : 1) SDLC**

15. Which is best fit for blank space 15?

- 1) Functional Testing
- 2) Non functional testing
- 3) Black Box Testing
- 4) White box testing
- 5) None of these

**Ans : 1)functional testing**

16. Which is best fit for blank space 16?

- 1) Unit testing
- 2) Non functional testing
- 3) Black Box Testing
- 4) White box testing
- 5) None of these

**Ans : 1) Unit Testing**

17. Which is best fit for blank space 17?

- 1) System testing
- 2) Non functional testing
- 3) Black Box Testing
- 4) White box testing
- 5) None of these

**Ans : 1) System Testing**

**Direction:- Read the below passage and answer the questions**

Functional dependency A B means that B is dependent on A i.e. from the value of A we can find the value of B from the relation. Therefore, to prove A B holds in a relation, one of the following conditions must be true: Condition1: either all the value of A must be unique Or Condition2: all the value of B must be same Or Condition3: If two or more tuples/rows of the relation have same value for attribute A then there must be also same value for attribute B i.e. if  $t1[A] = t2[A]$  then there must be  $t1[B] = t2[B]$ .

18. Which functional dependency holds in given relation R (A, B, C) and why?

A	B	C
7	1	8
7	2	5
7	3	5
5	8	8

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1.  $AB \rightarrow C$  &&  $C \rightarrow B$
2.  $BC \rightarrow A$  &&  $B \rightarrow C$
3.  $BC \rightarrow A$  &&  $A \rightarrow C$
4.  $AC \rightarrow B$  &&  $B \rightarrow C$

5. None of these

**Ans : 2)**  $AB \rightarrow C$  satisfies condition1 (all the values of AB are unique), but  $C \rightarrow B$  does not satisfy any of the three conditions (C has not unique values, B has not all same values and the value of C is repeated two times (8, 5) then the value of B is not repeated), so option 1 is incorrect.

$B \rightarrow C$  A satisfies condition1, and  $B \rightarrow C$  also satisfies condition1, so option 2 is correct.  $B \rightarrow C$  A satisfies condition1, but  $A \rightarrow C$  does not satisfy any of the three conditions, so option 3 is incorrect.  $A \rightarrow C$  B does not satisfy any of the three conditions, and  $B \rightarrow C$  satisfies condition1, so option 4 is incorrect. Since  $BC \rightarrow A$  &&  $B \rightarrow C$  holds in above relation, option 2 will be the answer.

19. Which functional dependency does not holds in given relation and why?

v	w	x	y	z
7	8	c	9	4
8	7	c	9	4
7	8	c	2	4
7	8	c	2	2

1.  $v \rightarrow wx$
2.  $yz \rightarrow x$
3.  $x \rightarrow yz$

4. None of these

5. All of these

**Ans : 3)**

$v \rightarrow wx$  satisfies condition 3 i.e. value of v is repeated 3 times ( 7 ) then value of wx is also repeated . so option 1 is correct.  $yz \rightarrow x$  satisfies condition 2, i.e. all values of x are same, so option 2 is correct.

$x \rightarrow yz$  does not satisfy any of the three conditions, so option 3 is incorrect.



**Direction:- Read the below passage and answer the questions**

TCP/IP (Transmission Control Protocol/Internet Protocol) is a suite of communication protocols that define the standards for transmitting data over computer networks, including the internet. The TCP/IP protocol is the foundation of the internet and enables devices to communicate with each other using a common language.

The TCP/IP protocol is divided into two layers: the Transport layer and the Internet layer. The Transport layer is responsible for ensuring that data is transmitted reliably from one device to another. This layer is comprised of two protocols: the Transmission Control Protocol (TCP) and the User Datagram Protocol (UDP). TCP is used for reliable data transmission, while UDP is used for fast transmission of data that can tolerate some packet loss.

The Internet layer is responsible for transmitting data packets between devices. This layer is comprised of two protocols: the Internet Protocol (IP) and the Address Resolution Protocol (ARP). IP is responsible for routing data packets between devices, while ARP is used to map IP addresses to physical addresses.

TCP/IP also includes a number of application layer protocols that are used to provide services to end-users. These include protocols such as HTTP (Hypertext Transfer Protocol) for web browsing, FTP (File Transfer Protocol) for file transfer, and SMTP (Simple Mail Transfer Protocol) for email. TCP/IP stands for \_\_\_\_\_(23)\_\_\_\_\_. It is a set of conventions or rules and methods that are used to interconnect network devices on the Internet. The internet protocol suite is commonly known as TCP/IP, as the foundational protocols in the suite are Transmission Control Protocol and Internet Protocol. It chooses how the information will be traded over the web through end-to-end communications that incorporate how the information ought to be organized into bundles (bundles of data), addressed, sent, and received at the goal. This communication protocol can also be utilized to interconnect organize devices in a private network such as an intranet or an extranet.

20. First layer of TCP/IP Suite name

- 1) Application Layer
- 2) Session Layer
- 3) Physical Layer
- 4) Transport Layer
- 5) Presentation Layer

**Ans : 1) Application layer**

21. For which layer TCP IP suite does not provide any Protocol

- 1) Application Layer
- 2) Session Layer
- 3) Physical Layer
- 4) Data Link Layer
- 5) Presentation Layer

**Ans : 4) Data Link Layer**

22. Which is connectionless and unreliable protocol

- 1) HTTPS
- 2) TCP
- 3) UCP
- 4) SMTP
- 5) None of these

**Ans: 3) UDP**

23. Fill the correct option for blank space 23.

- 1) Transmission Control Protocol/ Internet Protocol
- 2) Transmission Control Protocol
- 3) Internet Protocol
- 4) Translation Control Protocol/ Internet Protocol
- 5) None of these

**Ans : 1) Transmission Control Protocol/ Internet Protocol**

**Direction:- Read the below passage and answer the questions**

The JDBC-ODBC Bridge is a JDBC driver that implements JDBC operations by translating them into ODBC operations. To ODBC it appears as a normal application program. The Bridge implements JDBC for any database for which an ODBC driver is available. The Bridge is implemented as the \_\_\_\_\_(24)\_\_\_\_\_ Java package and contains a native library used to access ODBC.

The Bridge is used by opening a JDBC connection using a URL with the \_\_\_\_ (25)\_\_\_\_ subprotocol. See below for URL examples. Before a connection can be established, the bridge driver class, \_\_\_\_ (26)\_\_\_\_, must either be added to the \_\_\_\_ (27)\_\_\_\_ property named \_\_\_\_ (28)\_\_\_\_, or it must be explicitly loaded using the Java class loader. Explicit loading is done with the following line of code:

Class.forName("\_\_\_\_ (29)\_\_\_\_");

24. Fill in the correct option for 24 blank space.

- 1) sun.jdbc.odbc
- 2) sun.jdbc.odbc.JdbcOdbcDriver
- 3) java.lang.System
- 4) jdbc
- 5) sun.jdbc.odbc.JdbcOdbcDriver

**Ans : 1) sun.jdbc.odbc**

25 : Fill in the correct option for 25 blank space.

- 1) sun.jdbc.odbc
- 2) sun.jdbc.odbc.JdbcOdbcDriver
- 3) java.lang.System
- 4) jdbc
- 5) sun.jdbc.odbc.JdbcOdbcDriver

**Ans : 4) jdbc**

26 : Fill in the correct option for 26 blank space.

- 1) sun.jdbc.odbc
- 2) sun.jdbc.odbc.JdbcOdbcDriver
- 3) java.lang.System
- 4) jdbc
- 5) sun.jdbc.odbc.JdbcOdbcDriver

**Ans : 2) sun.jdbc.odbc.JdbcOdbcDriver**

26. Fill in the correct option for 26 blank space.

- 1) sun.jdbc.odbc
- 2) sun.jdbc.odbc.JdbcOdbcDriver
- 3) java.lang.System
- 4) jdbc
- 5) sun.jdbc.odbc.JdbcOdbcDriver

**Ans : 2) sun.jdbc.odbc.JdbcOdbcDriver**

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27. Fill in the correct option for 27 blank space.

- 1) sun.jdbc.odbc
- 2) sun.jdbc.odbc.JdbcOdbcDriver
- 3) java.lang.System
- 4) jdbc
- 5) sun.jdbc.odbc.JdbcOdbcDriver

**Ans : 3) java.lang.System**

28. Fill in the correct option for 28 blank space.

- 1) sun.jdbc.odbc
- 2) sun.jdbc.odbc.JdbcOdbcDriver
- 3) java.lang.System
- 4) jdbc.drivers
- 5) sun.jdbc.odbc.JdbcOdbcDriver

**Ans : 4) jdbc.drivers**

29. Fill in the correct option for 29 blank space.

- 1) sun.jdbc.odbc
- 2) sun.jdbc.odbc.JdbcOdbcDriver
- 3) java.lang.System
- 4) jdbc.drivers
- 5) sun.jdbc.odbc.JdbcOdbcDriver

**Ans : 5) sun.jdbc.odbc.JdbcOdbcDriver**

30. State true or false

ODBC drivers are available for Oracle, Sybase, Informix, Microsoft SQL Server, and Ingres.

- 1) True
- 2) False

**Ans : 1) True**

**DESCRIPTIVE PAPER**

**1. Below questions are descriptive questions and you need to write the answer in 600 words.  
Every question of 20 marks. [Attempt any 2]**

- 1) Write note on collection datatypes available in python with example.
- 2) Write a note on Machine learning, data mining and deep learning.
- 3) Write note on Binary search tree. Explain the best and worst case running time complexity and space complexity.

**2. Below questions are descriptive questions and you need to write the answer in 400 words.  
Every question of 10 marks. [Attempt any 2]**

- 1) What is Capability Maturity Model.
- 2) Write command that you'll use to configure or troubleshoot a network.
- 3) Why Hadoop is used in Big Data analytics? Explain the features of Hadoop.