

Signature of Candidate
------------------------

Signature of Invigilator
--------------------------

19183
Booklet Serial No.

## PAPER - I

### QUESTION PAPER BOOKLET (QPB)

Duration: 01:00 Hour (Sixty Minutes)

Maximum Marks: 100

Hall Ticket No.:

--

OMR Serial No.:

--

#### INSTRUCTIONS TO THE CANDIDATES

1. Candidate should write his/her HALL TICKET NUMBER and OMR SERIAL NUMBER in the space provided above and not elsewhere.
2. This Paper is a MCQ (Multiple Choice Question) based test with **negative marking**.
3. This QPB contains **24** pages including **3** pages for Rough Work and **Paper II**.
4. Check the QPB and MCQs thoroughly before taking the TEST.
5. Report to the INVIGILATOR in case of mis-print or any discrepancy in the QPB & MCQs.
6. There are 100 MCQs. Each MCQ has four options. Choose the correct option and darken the circle only with blue/black ballpoint pen in the OMR sheet against the corresponding option.
7. One mark is given for each correct option and negative marking of **0.25** marks for each incorrect option.
8. If more than one circle is **bubbled** for a question in the OMR Sheet, marks shall not be awarded.
9. At the end of the ENTRANCE TEST, handover the QPB & OMR sheet to the INVIGILATOR.
10. Candidate shall be disqualified, if the QPB and the OMR sheet are not handed over to the INVIGILATOR after the examination.

## SPACE FOR ROUGH WORK

3828

- What is the main use of the <canvas> element in HTML5?
  - To embed video and audio content.
  - To create interactive forms and input fields.
  - To draw graphics via JavaScript.
  - To structure and group related content on a webpage.
- When does the placeholder text inside an input field disappear in HTML5?
  - When the page is refreshed
  - When the user starts typing in the field
  - When the form is submitted
  - When the input field loses focus
- Which method is not used with localStorage or sessionStorage?
  - setItem()
  - getItem()
  - removeItem()
  - fetchItem()
  - all of the above
- If a developer wants data to be accessible only in the current tab and cleared once browser window is closed, which should they use?
  - localStorage
  - sessionStorage
  - cookies
  - cacheStorage
- Function currying in JavaScript heavily depends on closures because:
  - Each returned function must re-declare all variables.
  - The function call stack is permanently stored in memory.
  - Each nested function retains access to arguments passed in previous calls.
  - The outer function executes asynchronously.
- Which of the following scenarios best demonstrates both closure and higher-order function concepts together?
  - A setTimeout() function delaying a console log.
  - A function multiplier(factor) returning another function that multiplies input by factor.
  - A map() function squaring array elements.
  - A forEach() function printing each array element.

7. How does function composition enhance modularity in JavaScript?

- (a) By combining multiple small functions into a single reusable function chain.
- (b) By reducing the need for callback functions.
- (c) By making functions execute in parallel threads.
- (d) By preventing closures from retaining variables.

8. In Javascript, the code inside the \_\_\_\_\_ block executes regardless of whether an error occurred or not.

- (a) try
- (b) catch
- (c) throw
- (d) finally

9. When an error occurs and is not caught by a catch block, the program will \_\_\_\_\_. (a) continue normally (b) terminate execution (c) execute the finally block and continue (d) ignore the error silently

10. Select the correct syntax to get all elements with the class name menu-item, in Javascript:

- (a) document.getElementsByClass('menu-item')
- (b) document.getElementsByClassName('menu-item')
- (c) document.querySelector('menu-item')
- (d) document.getElementById('menu-item')

11. In Javascript, the syntax to select the first element with class card is?

- (a) document.querySelector('.card')
- (b) document.querySelectorAll('.card')
- (c) document.getElementsByClassName('card')[0]
- (d) Both (a) and (c) are correct

12. Which method is used to select an element by its unique ID, In JavaScript?

- (a) document.getElementById()
- (b) document.getElementsByClassName()
- (c) document.querySelectorAll()
- (d) document.getElementsByTagName()

13. In jQuery, what specific role does the .ajaxComplete() function performs?

- (a) It triggers immediately before an AJAX call is initiated.
- (b) It is executed after an AJAX request completes, regardless of success or failure.
- (c) It is triggered only when an AJAX request completes successfully.
- (d) Its function is to cancel a currently ongoing AJAX request.

14. To define a section of a document that contains navigation link in HTML 5, which new semantic element has been introduced?

- (a) <nav>
- (b) <links>
- (c) <menu>
- (d) <navigate>

15. Which statement is correct about HTML?

- (a) HTML describes the structure of a webpage
- (b) HTML is the standard markup language mainly used to create web pages
- (c) HTML consists of a set of elements that helps the browser how to view the content
- (d) All of the above

16. Who is known as the father of HTML?

- (a) Rasmus Lerdorf
- (b) Sergey Brin
- (c) Tim Berners-Lee
- (d) Brendan Eich

17. Identify the correct syntax to write comments in HTML?

- (a) <.....>
- (b) <!.....>
- (c) <.....!>
- (d) </.....>

18. Which HTML element is used to display an image on a webpage?

- (a) <img link="htmllogo.jpg"/>
- (b) <img alt="htmllogo.jpg"/>
- (c) <img url="htmllogo.jpg"/>
- (d) 

19. What kind of language is JavaScript, what is its use on websites?

- (a) JavaScript is a compiled language used to make the website interactive
- (b) JavaScript is an assembly language used to make the website interactive
- (c) JavaScript is a scripting language used to make the website interactive
- (d) None of the mentioned

20. What output will you get from JavaScript code snippet?

```
<p id="demo"></p>
var txt1 = "Java_";
var txt2 = "scriptquestion";
document.getElementById("demo").innerHTML = txt1 + txt2;
```

- (a) Javascriptquestion
- (b) Java \_scriptquestion
- (c) Java \_+ scriptquestion
- (d) Error

21. What output will you get from JavaScript code snippet?

```
// JavaScript Comparison Operators
```

```
function compare()
{
    let a=2;
    let b=2.0;
    if(a==b)
        return true;
    else
        return false;
}
```

- (a) True
- (b) False
- (c) Runtime error
- (d) compilation error

22. Identify the option that does not belong to JavaScript data types.

- (a) Character
- (b) Undefined type
- (c) Null type
- (d) All of the mentioned

23. Which statement best describes the jQuery?

- A programming language
- A web server software
- A text editor
- A JavaScript library

24. In the jQuery library, which one of the following is a factory function?

- Queryanalysis()
- jQuery()
- onclick()
- document.getElementById()

25. In jQuery, what is the \$ symbol?

- \$ represents a library function
- \$ is a variable
- \$ is an alias for jQuery
- \$ is an operator
- config.xml

26. In which scripting environment, client-side or server-side, is the jQuery library used?

- Client-side
- Server-side
- Both
- None of them
- Both client-side and server-side

27. In jQuery, which function allow to bind multiple events to a single element?

- .handle()
- .combine()
- .on()
- .attach()
- None of the above

28. Which of the following features of IIS (Internet Information Services) helps in improving security by limiting access to unnecessary functionalities?

- Extensibility
- Componentization
- Web Platform Installer
- Database Manager
- None of the above

29. In the workflow of a LAMP stack, when a browser requests a dynamic web page, which sequence of components handles the request?

- (a) MySQL → PHP → Apache → Linux → Browser
- (b) Browser → Apache → PHP → MySQL → Apache → Browser
- (c) Browser → PHP → Apache → MySQL → Browser
- (d) Browser → Linux → Apache → MySQL → PHP → Browser

30. What does PHP do in the web stack?

- (a) Styles the web pages
- (b) Manages the operating system
- (c) Acts as a server-side scripting language
- (d) Creates the database tables

31. \_\_\_\_\_ refers to a compilation of software that is together used to build websites or web applications.

- (a) Database
- (b) Web Stack
- (c) Apache
- (d) Script Interpreter

32. Which tool in XAMPP is used for database access?

- (a) FileZilla
- (b) PHPMyAdmin
- (c) Mercury
- (d) Tomcat

33. What makes XAMPP a time-saver for developers?

- (a) It writes code automatically
- (b) It provides several ways for managing configuration changes
- (c) It doesn't require any setup
- (d) It works without internet

34. Which statement best describes the role of MySQL in XAMPP?

- (a) Server-side scripting
- (b) Handling HTTP requests
- (c) Managing and storing data
- (d) Text editing and web programming

35. Which component is most suitable to create scripts for text processing and network programming using XAMPP?

- Apache
- PHP
- MySQL
- Perl

36. Identify the option that is not a web server.

- Jetty
- Tornado
- BlueGriffon
- Apache tomcat

37. Which file is used as the default document for a website hosted on IIS?

- style.css
- index.html
- web.config
- config.xml

38. Choose the role of a binding in IIS website configuration?

- To define the website's physical path
- To manage application pool settings
- To set security permissions for the website
- To associate a website with a specific IP address, port, and/or hostname

39. For securing communication with websites hosted on IIS, which protocol is used?

- HTTPS
- SMTP
- FTP
- DNS

40. Which component of SQL architecture is responsible for analyzing query syntax and schema correctness before execution?

- SQL Engine
- Query Parser
- Optimizer
- Execution Engine

41. The GRANT command belongs to which SQL category and is used for—

- DCL; providing privileges to users
- DDL; creating database objects
- DML; updating data
- TCL; saving transactions

42. The SAVEPOINT command in SQL is mainly used to—

- Roll back all changes in a transaction
- Mark a partial rollback point within a transaction
- Commit all operations in progress
- Delete a transaction log

43. What problem does Data Type Mapping solve in ORM?

- Prevents data type mismatches between application objects and database
- Increases the speed of database queries
- Reduces database storage requirements
- Enhances database security protocols

44. Which component of ORM handles the conversion of object operations to SQL queries?

- Database server
- ORM framework
- Programming language compiler
- Web server

45. What is HQL in the context of ORM?

- Hyper Text Query Language
- Hibernate Query Language
- High Performance Query Language
- Hierarchical Query Language

46. When a table has a clustered index in SQL, the data rows are:

- Stored in random physical order
- Stored separately from the index
- Stored directly in the order of the indexed column(s)
- Stored in non-sequential order

47. Which command correctly removes an existing clustered index from a table in SQL?

- DROP INDEX index\_name;
- DELETE INDEX table\_name.index\_name;
- DROP INDEX table\_name.index\_name;
- REMOVE INDEX table\_name.index\_name;

48. In SQL, when a SELECT query with WHERE clause runs on a table with a clustered index:

- The full table is scanned
- The database engine uses index to directly locate rows
- The query optimizer skips index lookup
- The query execution slows down due to indexing overhead

49. If a table has no indexes, how does SQL Server retrieve queried data?

- By partial index scan
- By full table scan
- By hash match lookup
- By index seek operation

50. If a user forgets to issue a COMMIT or ROLLBACK, what might occur?

- The database will auto-save.
- The transaction remains open, locking resources.
- The transaction will roll back automatically.
- SQL Server will issue an error and terminate.

51. Which of the following is NOT a type of SQL Transaction?

- Read Transaction
- Write Transaction
- Log Transaction
- Distributed Transaction

52. Which type of stored procedure is predefined by SQL Server for performing administrative operations like renaming objects?

- User-Defined Stored Procedure
- System Stored Procedure
- CLR Stored Procedure
- Administrative Procedure

53. Why are SQL stored procedures said to reduce network traffic?

- They compress SQL commands before sending them.
- They execute multiple SQL statements in a single call.
- They use encrypted connections by default.
- They cache database results locally.

54. What is the primary advantage of using TRY...CATCH blocks in SQL stored procedures?

- They optimize performance.
- They handle exceptions and improve error management.
- They reduce network traffic.
- They restrict user permissions.

55. What is the main difference between System and User-Defined SQL Stored Procedures?

- System procedures execute faster than user-defined ones.
- System procedures are built-in; user-defined are created by users.
- User-defined procedures cannot take parameters.
- System procedures cannot be modified.

56. Which two AWS services are specifically designed for long-term data storage and backup automation?

- AWS CloudFront
- AWS Elastic Beanstalk
- AWS Glacier
- AWS EC2

57. AWS introduced its first set of cloud computing services in the year 2006.

- 2000
- 2003
- 2006
- 2010

58. Which AWS service combination helps in distributing data globally and migrating workloads securely?

- S3 + Glacier
- ECS + Lambda
- CDN + Migration + Hybrid Services
- EFS + Backup

59. Which of the following correctly describes AWS VPC?

- A managed Kubernetes orchestration service
- A virtual private network for isolated cloud resources
- A backup storage for EC2
- A data delivery service for migration

60. For containerized workloads, AWS offers orchestration through \_\_\_\_\_, managed Kubernetes through \_\_\_\_\_, and image storage through \_\_\_\_\_.

- ECS, EKS, ECR
- EC2, EFS, S3
- Beanstalk, CloudFront, Glacier
- Lambda, IAM, EBS

61. For long-term, low-cost data archiving, AWS offers \_\_\_\_\_, while \_\_\_\_\_ automates backup and recovery operations.

- S3, CloudTrail
- Glacier, Backup
- EFS, ECS
- EBS, VPC

62. An \_\_\_\_\_ in AWS is a preconfigured template that includes an operating system and software for launching consistent servers.

- EBS Volume
- AMI
- Snapshot
- Stack

63. What is the purpose of a Network Security Group (NSG) in Azure?

- To provide global load balancing for web traffic
- To create a private network connection to an on-premises network
- To filter network traffic to and from Azure resources in a Virtual Network
- To manage identity and access for users

64. Which Azure storage solution is designed for storing large amounts of unstructured data, like images, videos, and backup files?

- Azure Files
- Azure Blob Storage
- Azure Queue Storage
- Azure Table Storage

65. What standard is followed by Azure?

- HTML
- XML
- REST
- All of the mentioned

66. Which web apps are suitable for deployment on Azure?

- WCF
- PHP
- ASP.NET
- All of the mentioned

67. Which Azure component represents the management service?

- config
- virtual machines
- application
- none of the mentioned

68. During the TLS handshake, the master\_secret is derived from:

- Only the pre\_master\_secret.
- The pre\_master\_secret and the random nonces from both the client and server (client\_random, server\_random).
- The pre\_master\_secret, the client\_random, the server\_random, and the server's public key.
- The pre\_master\_secret, the client\_random, the server\_random, and the hash of the handshake messages.

69. The TLS protocol's "Record Layer" is responsible for:

- Negotiating the cipher suite and cryptographic parameters.
- Encrypting, authenticating (via a Message Authentication Code - MAC), and compressing data payloads.
- Establishing the secure connection between the client and server.
- Alerting the peer to potential errors or security breaches.

70. What is the fundamental conceptual difference between a Wildcard SSL Certificate and a Multi-Domain SSL Certificate?

- Wildcard certificates offer Extended Validation (EV), while Multi-Domain only offer Domain Validation (DV).
- Wildcard certificates secure a single domain and all its subdomains, while Multi-Domain secures multiple unrelated domains.
- Wildcard certificates use public-key cryptography, while Multi-Domain certificates do not.
- Wildcard certificates are issued faster, while Multi-Domain certificates require a longer validation process.

71. The evolution from SSL to TLS was primarily signified by:

- A complete change in the underlying encryption algorithms.
- The transfer of the protocol's development from Netscape to the IETF.
- The introduction of the concept of digital certificates.
- Making the protocol incompatible with all previous SSL versions.

72. How does the SSL protocol provide Authentication?

- By solely encrypting the data into a jumble of characters.
- Through a handshake process where devices confirm each other's identities, often using digital certificates.
- By using the Record Protocol to divide data into fragments.
- By ensuring that the TCP connection is reliable.

73. How do SSL certificates provide both secure data transfer and verify the identity of a website?

- Use of symmetric and asymmetric cryptography in tandem
- Exclusive reliance on symmetric key algorithms
- Dependence on TCP for reliability
- Implementation of fragment compression techniques

74. In the context of the SSL/TLS protocol suite, what is the conceptual relationship between the Handshake Protocol and the Record Protocol?

- The Handshake Protocol is a specialized version of the Record Protocol
- The Record Protocol transports Handshake Protocol messages securely
- They operate completely independently at different OSI layers
- The Handshake Protocol encrypts Record Protocol messages

75. Which of the following is weak security protocol?

- HTTPS
- SSL
- SMTP
- SFTP

76. The primary purpose of SSL is \_\_\_\_\_ and \_\_\_\_\_.

- integrity and authenticity
- integrity and non-repudiation
- authenticity and privacy
- confidentiality and integrity

77. Data at the network level is encrypted using \_\_\_\_\_.

- IPSec
- HTTPS
- SMTP
- S/MIME

78. What is the result of the postfix expression  $6\ 3\ 2\ 4\ + - *?$

- 74
- 18
- 22
- 40

79. Write the prefix form of expression :  $A - B / (C * D ^ E)$

- $-A/B^*C^DE$
- $-A/BC*^DE$
- $-ABCD*^DE$
- $-/*^ACBDE$

80. Name the data structures that is used for parentheses matching?

- Binary tree
- Queue
- Stack
- Priority queue

81. Name the data structure that provides efficient searching of the elements?

- Binary search tree
- 2-3 tree
- Unordered lists
- Bubble Search

82. Which file extension does Excel 2016 use by default?

- .xls
- .xlsm
- .xlsx
- .xsb

83. How do you start a formula in Excel?

- By typing =
- By typing @
- By typing +
- By typing #

84. What is the correct Excel formula for calculating percentage?

- =A1\*B1
- =A1/B1
- =A1/B1\*100
- =A1+B1

85. Which type of firewall looks at active connections to decide what to allow based on the context of traffic?

- Proxy firewall
- Stateful Inspection Firewall
- Packet-filtering firewall
- Application-layer firewall

86. What protocol encrypts web traffic and is shown as 'HTTPS' in the browser's address bar?

- SSH (Secure Shell)
- FTP (File Transfer Protocol)
- SNMP (Simple Network Management Protocol)
- TLS (Transport Layer Security)

87. Convert the following binary notation to hexadecimal notation –  
 10000000 00001011 00000011 00011111

- 0x 80 0B 03 1F
- 0x 81 0B 04 1E
- 0x 80 0C 03 1F
- 0x 80 0B 03 1E

88. Google Workspace is \_\_\_\_\_.

- An online gaming platform
- A video streaming service
- A social media platform
- A cloud-based suite of productivity and collaboration tools

89. Which app in Microsoft 365 allows you to make and show presentations?

- Microsoft Word
- Microsoft PowerPoint
- Microsoft Excel
- Microsoft Teams

90. Microsoft's Office Web Apps are developed using \_\_\_\_\_ and will later include features from Silverlight

- BASIC
- AJAX
- COBOL
- All of the mentioned

91. Which language is directly understood by a computer?

- Computer understands only C Language
- Computer understands only Binary Language
- Computer understands only Assembly Language
- Computer understands only BASIC

92. Which of the following computer language is written in binary codes only?

- (a) COBOL
- (b) C#
- (c) C
- (d) Machine language

93. Which of these does not describe a feature of a computer?

- (a) Versatility
- (b) Accuracy
- (c) Diligence
- (d) I.Q.

94. In a computer, what is the smallest data unit?

- (a) Bit
- (b) Nibble
- (c) Byte
- (d) KB

95. Which device enables a computer to communicate with outer world?

- (a) Network Interface
- (b) Input/Output (I/O) Device
- (c) Drivers
- (d) Storage

96. What are the main uses of Node.js?

- (a) Managing databases
- (b) Developing mobile apps
- (c) Creating user interfaces
- (d) Building server-side applications

97. Node.js is developed using which language?

- (a) JavaScript
- (b) C++
- (c) C
- (d) All of the mentioned

98. What is the full form of npm?

- Node Program Module
- Node Project Management
- Node Package Manager
- None of the mentioned

99. Which one of these is a framework used in Node.js?

- React
- Angular
- Express.js
- Vue

100. Which command should you run to install a Node.js package with npm?

- npm update
- npm get
- npm add
- npm install

101. Which of the following is not a type of programming language?

- Java
- Python
- JavaScript
- HTML

102. Which of the following is not a type of programming language?

- C
- C++
- Java
- Python

103. Which of the following is not a type of programming language?

- Java
- C
- C++
- Python

Hall Ticket No.:

Hall Ticket No.:

## PAPER - II

### Descriptive Type Questions

**Note :** 1) Candidate should write answers in ENGLISH language only.  
 2) Candidate is required to return the question paper along with answer booklet to the Invigilator after the examination.

**Duration: 02:00 hours (Two Hours)**

**Maximum Marks: 100**

1. Attempt any one in a minimum of 200 words.  $(1 \times 10 = 10 \text{ Marks})$ 
  - a) Explain the key features and advantages of HTML5 compared to previous versions of HTML. Discuss how semantic tags improve web accessibility.
  - b) Describe the concept of Document Object Model (DOM) and explain how JavaScript interacts with it to modify web pages dynamically.
2. Attempt any one in a minimum of 300 words.  $(1 \times 15 = 15 \text{ Marks})$ 
  - a) Compare web hosting using IIS with hosting on WAMP/LAMP/XAMPP servers. Explain configuration and deployment steps for a simple website on each.
  - b) Discuss the process of deploying a web application on AWS or Microsoft Azure. Include details about setting up instances, configuring web servers, and securing the application.
3. Attempt any one in a minimum of 300 words.  $(1 \times 15 = 15 \text{ Marks})$ 
  - a) What are the major advantages and disadvantages of the "Sanchar Sathi App" in terms of user security, accessibility and overall effectiveness in preventing telecom-related fraud?
  - b) Discuss the main features of jQuery. How does jQuery simplify event handling, DOM manipulation, and AJAX requests?
4. Attempt any one in a minimum of 300 words.  $(1 \times 15 = 15 \text{ Marks})$ 
  - a) What is Node.js? Explain its event-driven architecture and non-blocking I/O model. Give examples of where Node.js is advantageous.
  - b) Describe the architecture of AngularJS and how two-way data binding works. Include explanations of controllers, directives, and modules.

5. Attempt any one in a minimum of 300 words.  $(1 \times 15 = 15 \text{ Marks})$

- a) Explain the difference between SQL and NoSQL databases. Provide examples of when to use one over the other.
- b) Describe normalization in relational databases. Why is it necessary, and what are its advantages and possible drawbacks?

**Descriptive Type Questions**

6. Attempt any one in a minimum of 300 words.  $(1 \times 15 = 15 \text{ Marks})$

- a) Describe common network security threats such as phishing, DDoS attacks, and man-in-the-middle attacks, and explain mitigation techniques.
- b) Discuss the importance of firewalls, VPNs, and intrusion detection systems in securing computer networks.

7. Attempt any one in a minimum of 300 words.  $(1 \times 15 = 15 \text{ Marks})$

- a) Explain the concepts of file permissions, directory structure, and process management in Linux. Include relevant commands.
- b) Explain the architecture and services provided by AWS and Azure for web application hosting and scaling.

$(1 \times 15 = 15 \text{ Marks})$



$(1 \times 15 = 15 \text{ Marks})$

Answer any one in a minimum of 300 words.

Answer any one in a minimum of 300 words.

Answer any one in a minimum of 300 words.

Answer any one in a minimum of 300 words.

Answer any one in a minimum of 300 words.

Answer any one in a minimum of 300 words.

Answer any one in a minimum of 300 words.

Answer any one in a minimum of 300 words.

Answer any one in a minimum of 300 words.

SYSP/199/DEC25

SPACE FOR ROUGH WORK

---

EXAMINER'S

**SPACE FOR ROUGH WORK**

SEAL  
SEAL  
SEAL

11-2592