

SECOND YEAR HIGHER SECONDARY
MODEL EXAMINATION – FEBRUARY 2023

COMPUTER SCIENCE

PART-I

Answer any 5 questions from 1 to 6. Each carries 1 score. (5×1=5)

1. Elements inside a structure is accessed by ___ operator
A: Dot operator (.)
2. ___ is the data structure that follows FIFO principle:
A: Queue
3. The type of tag that requires only a starting tag but not an ending tag is called _____.
A: Empty tag
4. ___ is used to store the IP address of a webserver connected to a domain name,
A: A record/Address record/DNS (Domain Name System)
5. The description or structure of a database is called _____.
A: Database schema
6. Name the educational channel of Kerala Government.
A: Kite Victers

PART-II

Answer any 9 questions from 7 to 18. Each carries 2 scores. (9×2=18)

7. Write any 2 differences between Array and a Structure

Array	Structure
It is a derived data type.	It is a user-defined data type
Collection of same type of data.	Collection of different types of data.

8. Match the following:

A	B
(1) Stack	(a) Rear
(2) Queue	(b) POP
(3) Array	(c) Link
(4) Linked list	(4) Subscript

A:

A	B
(1) Stack	(b) POP
(2) Queue	(a) Rear
(3) Array	(d) Subscript
(4) Linked list	(c) Link

9. Write an algorithm to add a new element in a stack.

A: A variable TOS is used to denote the Top of the Stack. Initially it is set as -1. Data items are stored in a variable VAL.

The following steps does a push operation

Start

- 1: If (TOS < N - 1) Then
- 2: TOS = TOS + 1

```

3:   STACK [TOS] = VAL
4:   Else
5:     Print "Stack Overflow"
6:   End of If

```

Stop

10. Explain any two methods of implementing CSS in a webpage.

A: Inline: - By using style attribute inside HTML elements.

Internal: - By using <style> element in the <head>section

11. Name any two attributes of FORM tag.

A: Action/Method/Target/Name

12. Explain any two data types in JavaScript.

A: Number: - Represents all types of numbers. E.g. -247, 5, 3.86

String: - Any combination of characters enclosed within double quotes E.g. "India".

13. Distinguish between shared hosting and dedicated hosting

A:

Shared Hosting	Dedicated Hosting
Different sites on a single server	Single site on the server
Cheap	Very expensive

14. Expand the following Terms:

(a) VPS (b) SFTP

A: a. Virtual Private Server b. Secure File Transfer Protocol.

15. Name any 4 column constraints in SQL...

A: NOT NULL, AUTO_INCREMENT, PRIMARY KEY, UNIQUE

16. Write any 4 rules for naming tables and columns in SQL...
- Name can contain letters (A-Z, a-z), digits (0-9), under score (_) and dollar (\$) symbols.
 - It must contain at least one character
 - White spaces and special symbols are not allowed
 - It cannot be an SQL keyword
17. Write any 2 differences between parallel computing and serial computing

A:

Serial computing	Parallel computing
A single processor.	Multiple processors with a shared memory.
Only one instruction is executed on a single processor at a time.	More than one instruction is executed on multiple processors at a time.

18. Explain the following terms in connection with Cloud Service Models:

(a) SaaS (b) IaaS

A: **SaaS (Software as a Service)**

E.g. Google docs.

IaaS (Infrastructure as a Service)

E.g. Amazon Web Services, Google Compute Engine.

PART-III

Answer any questions from 19 to 29. Each carries 3 scores. (9x3=27)

19. What is Dynamic Memory Allocation? State the name and use of two dynamic operators,

A: In dynamic memory allocation variables get allocated while program unit is active. The operator *new* is used for memory allocation during run time (dynamic memory allocation). The *delete* operator is used to de-allocate the memory.

20. What is Inheritance? Explain any two types of Inheritance.

A: Inheritance is the process by which objects of one class acquire the properties and functionalities of another class.

Two types of inheritance are **single inheritance** and **multi-level inheritance**. It is depicted below



21. Write html code to display the following in a web page:

(a) A_2B^3

(b) $X > Y$

(c) $X \& Y$

A: a. `A₂B³`

b. `X > Y`

c. `X & Y`

22. Explain any 3 attributes of <BODY> Tag

A: 1. Background - An image can be set as background.

E.g. `<BODY background = "school.jpg">`

2. Bgcolor - Sets background color.

E.g. <BODY bgcolor = "Yellow">

3. Text - Specifies color of the text in the web page.

23. Write a short note on Heading Tags in HTML

A: There are 6 heading tags in HTML. Those are <H1>, <H2>, <H3>, <H4>, <H5> and <H6>. In this tags <H1> is used for the largest heading. <H2> is used for the second largest heading. <H3> is used for third largest heading and <H6> is used for the sixth largest heading. Align attribute can be used with heading tags for left, right or centre alignment of headings.

24. List and Explain any 3 Mouse Events in JavaScript.

A:

Event	Occurs
onClick	When the user clicks on an object
onMouseEnter	When the mouse pointer is moved onto an object
onMouseLeave	when the mouse pointer is moved out of an object

25. List and Explain any 3 Built-in functions in JavaScript.

A: **alert()** : - Used to display a message on the screen.

isNaN() : - Used to check whether a value is number or not.

toUpperCase () : - It is used to convert the characters to uppercase letter.

26. List and explain any 3 database users in DBMS.

1. Database Administrator (DBA)

The DBA is responsible for the performance, integrity and security of the database. They are involved in planning and

developing the database as well as troubleshooting any issues.

2. Application Programmers

They are Computer professionals who interact with the DBMS through application programs like C++, Java etc.

3. Naïve Users

Naïve users are not aware of the details of the DBMS. E.g. bank clerk.

27. List and explain the 3 components of SQL?

a. Data Definition Language (DDL)

DDL commands are CREATE, ALTER and DROP.

b. Data Manipulation Language (DML)

DML commands are SELECT, INSERT, UPDATE and DELETE.

c. Data Control Language (DCL)

DCL commands are GRANT and REVOKE

28. Explain the following terms in connection with the e-Governance infrastructure.

(a) SDC (b) KSWAN (c) CSC

A: a. **SDC (State Data Center)**: - SDC supports e-Governance initiative by providing functions like, keeping data repository of the state, secure data storage, online delivery of services, state internet portal, disaster recovery etc.

b. **KSWAN (Kerala State Wide Area Network)**: - This WAN acts as a backbone of the State Information Infrastructure. It connects Thiruvananthapuram, Kochi and Kozhikode as its hubs and extends to all 14 districts linking each of the 152 Block Panchayats.

c. **CSC (Common Service Centre)**: - These are front-end delivery points of the government, private and social sector services for the rural citizens of India. E.g. Akshaya centers

29. What is the difference between echo and print in PHP?

A:

echo	Print
It can take more than one parameter	Takes only one parameter
Does not return any value	Returns true or 1 on successful output or false otherwise
Faster than print	Slower than echo

PART – IV

Answer any 2 questions from 30 to 32. Each carries 5 scores. (2×5=10)

30.

(a) What do you mean by an attribute of a Tag in HTML? (1)

(b) Explain any 4 attributes of <MARQUEE> Tag. (4)

A:

a. Attributes are special words which provide additional information to the tags. E.g. Href is an attribute of <A>.

b. Height - To set height

Width. – To set width.

Direction – To set direction values = up, down, left or right

Bgcolor – To set a back ground colour.

31. Define the following operations in RDBMS with example:

- (a) Union Operation (2)
- (b) Set Difference Operation (2)
- (c) Select Operation (1)

A: Union operation returns a relation containing all tuples appearing in either or both of the two relations. Set difference operation returns a relation containing the tuples appearing in the first relation but not in the second relation. Select operation is used to select rows from a relation that satisfies a given condition. Consider the following example

ARTS

AdmNo	Name	Batch
101	Anu	S2
104	Binu	C2
108	Fida	H2

SPORTS

AdmNo	Name	Batch
102	Minnu	H2
101	Anu	S2
103	Dilu	C2

AdmNo	Name	Batch
101	Anu	S2
102	Minnu	H2
103	Dilu	C2
104	Binu	C2
108	Fida	H2

ARTS U SPORTS

AdmNo	Name	Batch
104	Binu	C2
108	Fida	H2

ARTS - SPORTS

The result of the select operation $\sigma_{AdmNo=101}(\mathbf{ARTS})$ will be

101	Anu	S2
-----	-----	----

32. (a) Explain the term e-Governance. (1)

(b) Describe the different interactions in e-Governance. (4)

A: E-Governance is the application of ICT (Information and Communication Technology) for delivering government services to citizens in a convenient, efficient and transparent manner. The interactions in E-governance are

G2G (Government to Government): - It is the sharing data electronically among government departments or agencies.

G2C (Government to Citizens): The citizen utilizes government services electronically. It increases availability and accessibility of public services in a transparent manner.

G2B (Government to Business): The government interacts with business community through electronic modes. G2B reduces red-tapism, save time, reduce cost and ensure transparency

G2E (Government to Employees): The government interacts with employees using e-Governance services, which result in fast and efficient communication between government and employees.