

Plus 2 Model Computer Science 2020

Answer any 5(1 Score Each)

1. C++
2. Inserting a new data item to the stack
3. File Zilla
4. Simple Mail Transfer Protocol
5. href
6. 2000

Answer any 9 from 7-18. (2 Score Each)

7. `struct student{ int admno; char name[25];
int age; float weight; };` (2 Score)
8. **new** is used to allocate memory during execution of the program. **delete** is used to de-allocate the memory during run time. (1+1=2 Score)
9. Once a class is written, created and debugged, if it is needed it can be distributed for using in another programs. This is called re-usability. The concept of inheritance provides the idea of re-usability. Through this, we can add additional features to an existing class without modifying it. This is made possible through deriving a new class from the existing one. Then new class inherit the capability of old one and can add features of its own. (1+1=2 Score)
10. reversing a string, creating polish strings, evaluation of polish strings. (Any 2) (1+1=2 Score)
11. a) https(hypertext transfer protocol secure) (1 Score)
b) https works using secure sockets layer (SSL) which provides a standard security technology for establishing an encrypted connection between computers on internet. SSL provides security capabilities to http. The SSL protocol not only ensures privacy, but also ensures that no other website can impersonate the uses login account nor alter the information sent. (Any one point) (1 Score)
- 12 `<script lang='JavaScript'>` tells the browser that the code that follows is a JavaScript code. The browser handles the JavaScript code. The script code is interpreted at runtime by the JavaScript engine. Every browser has a JavaScript engine. JavaScript engine is virtual machine for executing JavaScript code. When the browser sees JavaScript code it is passed to the script engine for processing. The script engine executes the code. (1+1=2 Score)
13. In JavaScript ,variables can be declared by using the keyword **var**. ex: **var x**;
The three basic data types in JavaScript are *number, string, Boolean* (1+1=2 Score)
14. a) 80 b) 0 (1+1=2 Score)
15. A primary key is one of the candidate keys chosen to be the unique identifier for the table by the database designer. A primary key is a set of one or more attributes that can uniquely identify tuples within the relation.
A candidate key that is not the primary key is called an alternate key. In the case of two or more candidate keys, only one of them can serve as the primary key. The rest of them are alternate keys. (1 +1=2 Score)
16. In PHP code, there are two types of comments in PHP. Single line comment(`//`) and multi line comment(`/*.....*/`). (1+1=2 Score)
17. Multiple processors are used with a shared memory in parallel computing. A single processor is used in serial computing.
Instructions from each part execute simultaneously on different processors in parallel computing. But in serial computing, only one instruction is executed on a single processor at any moment of time.

A problem is broken into discrete parts that can be solved concurrently in parallel computing, whereas a problem is broken into a discrete series of instructions in serial computing.(Any 2) (1+1=2Score)

18. E-governance is the application of ICT for delivering government services to citizens in a convenient, efficient and transparent manner. The objective of E-governance is to ensure that the services of the government reach the public promptly and efficiently. Information and communication technology aided governance is generally known as E-governance.

Challenges in the implementation of e-governance are listed below:

The existing digital divide is an obstacle in utilising the services of E-governance. Those who live in remote areas with lower e-literacy will face difficulty to access the service of E-governance.

E-governance applications, being computer web based, security measures are highly required since there is possibility of cyber attack. Usually a huge initial investment and planning are required for the proper implementation and maintenance of E-governance services.

Many people are anxious about the sharing of their personal information, biometry etc to the agencies designated for data collection.

Integrity of various departments is very much essential for the efficiency and effectiveness of E-governance. (Any 2 challenges) (1+ ½ *2=2 Score)

Answer any 9 from 19-30(3 Scores Each)

19.Array: It is a derived data type. A collection of same type of data. Elements of an array are referenced by using the corresponding subscripts. When an element of an array becomes another array, multidimensional array is formed. Array of structure is possible.

Structure: It is a user defined data type. A collection of different types of data. Elements of structure are referenced using dot operator. When an element of a structure becomes another structure nested structure is formed structure can contain arrays as elements.

(Atleast 3 differences. 1 score for each.) (1+1+1=3 Score)

20. OOP provides a clear modular structure for programs. It is good for defining abstract data types. Implementation details are hidden from other module and have a clearly defined interface. It is easy to maintain and modify the existing code as new objects can be created without disturbing the existing ones. It can be used to implement real life scenarios. It can define new data types as well as new operations for operators. (Any three advantages one score reach.) (1+1+1=3 Score)

21. Operations on data structures are traversal, searching, inserting, deleting, sorting and merging.

Traversal is an operation in which each element of the data structure is visited. The traversal proceeds from the first element to the last one in the data structure.

Searching is the process of finding the location of a particular element in a data structure. Searching may also be a process of finding the location of all the elements satisfying one or more conditions.

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Insertion is the operation in which a new data is added at a particular place in a data structure.

Deletion is an operation in which a particular element is removed from the data structure

Sorting is the technique of arranging the elements in a specified order, ie either in ascending or descending order. Sorting of elements in a data structure makes searching faster.

Merging usually refers to the process of combining elements of two sorted data structures to form a new one. But the simplest form of merging is the joining of the elements of both the data structures into a third empty data structure. (1/2 * 6 = 3 Score)

22. A data centre is a dedicated physical location where organisations house their service and networking systems. Data centres are used for storing, processing and serving large amounts of mission critical data to their clients.

A data centre requires extensive backup, power supply systems, cooling systems, high-speed networking connections and security systems. (1+2 =3 Score)

23. a. <frameset> (1 Score)

```
b. <html><head><title>frames</title></head>
<frameset cols="50%,50%">
    <frame name='left' src='sample1.html'>
    <frame name='right' src='sample2.html'>
</frameset>
</html> (2=3 Score)
```

24. a) alert() b) isNaN() c) toUpperCase() d) toLowerCase() e) charAt() f) length property (1/2 x 6=3 Score)

25. Web hosting is the service of providing storage space in a web server to serve files for a website to be made available on the internet. The companies that provide web hosting services are called web hosts. (1 Score)

Different types of web hosting are shared hosting, virtual hosting(VPS) and dedicated hosting. (1 Score)

The type of web hosting has to be decided based on requirements like the amount of space needed for hosting, the number of visitors expected to visit the website, the use of resources like databases, programming support etc. (1 Score)

26. The advantages of using DBMS is listed below.

Controlling data redundancy, Maintaining data consistency, Efficient data access, Ensuring data integrity, Providing data security, Sharing of data, Enforcement of standards, Crash recovery. (1/2+1/2 +1/2+1/2+ 1/2+1/2=3 Score)

27. a) Alter table <tableName> drop <columnname>
b) Delete from <tablename> where <condition>
c) Update <tablename> set <columnname>=<newvalue> where <condition>. (1+1+1=3 Score)

28: **get** and **post** methods. (1 Score)

If you are using **method=get**, the data remains visible in the address bar since contents are passed as a part of the URL. Paging can be bookmarked. Data is submitted as a part of the URL. Data sending is fast but not secure. **get** can only send 2000 characters.

method=post, the data is not visible as contents are passed to the script as an input file. Page link can never be bookmarked. Data is submitted as a part of http request. Data sending secure but slow as compared to get. No limit on number of characters to sent (Any 4 difference) (1/2 x 4=3 Score)

29. The form of computing in which a group of personal computers, storage devices etc are linked together so that they can work like a single computer.

price performance ratio: cluster computing significantly reduces the cost of processing power
availability: if any one of the system components fails the system as a whole stays highly available
scalability: processes and nodes can be added to a cluster whenever demand increases. (1+1+1=3Score)

30. E business is the sharing of business information maintaining business relationships and conducting business transactions by means of the ICT application. (1 Score)

Good percentage of the *population is unaware of IT applications and its uses*. Surprisingly most of the regular internet uses also lack knowledge about online business and its possibilities.

Most of the customers especially to *rural population do not process plastic money* - credit card, debit card and net banking systems, which is necessary for a business.

If not used with caution *customers may lose valuable information like their credit card number, passwords etc*.

Products like apparel, handicraft, jewellery etc are often purchased after examining physically but in online shopping, *customers don't have this touch and feel advantage*.

For the success of a business of any organisation or company perfect efficient shipment service is a necessity. (1+ 1/2 x 4 =3 Score)

Answer any 2 from 31,32,33 (5 Scores Each)

31.a. The main attributes of HTML tag are **dir** and **lang**. (1 Score)

Dir Attribute can have values either **ltr** or **rtl**.

Lang can have **En,it,ar...** indicating different languages used. (1 Score)

```
b. <HTML>
    <HEAD>
        <TITLE>
            This is the title of web page
        </title>
    </head>
    <BODY>
        Welcome to the world of web pages
    </body>
</HTML>
```

We can see some of the words in the uppercase within a pair of angle brackets (<>). These are HTML tags. It is not necessary that tags must be written in the uppercase. HTML is not case sensitive. we can use either uppercase, lowercase or even a mix of the two.

All HTML pages begin with the tag HTML and end with the tag </HTML>. There are mainly two sections in an HTML document, namely head section and body section. the <head> tag is used to define the header section. The header section contains the

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information about the document including the title of the webpage. The <title> tag is used to define the title of the page which will be displayed on the title bar of the browser window. The <body> tag is used to define the body section. The body section contains the contents to be displayed in the webpage. (1.5+1.5=3 Score)

32. input type **text** create textbox
input type **password** textbox but here characters are presented by code simple such as asterisk.

Input type **checkbox** creates a checkbox where user can enter yes or no values

radio button is similar to checkbox but is used to select a single value from a group of values when multiple radio buttons are assigned with the same value for name attribute. Users can select only one button at a time. When the user changes the selection, the one that is already selected becomes deselected.

if type=**reset**, a special button used to clear all the entries made in the form and to bring it to the initial state. **submit** is another special button used to submit on the entries made in the form to the server. **button** creates standard graphical button on the form. We can call functions on clicking this button. (any 5) (1x5= 5 Score)

- 33.a. NAME

APPU
THARUN (1 Score)
- b. avg(amount)

25000 (1 Score)
- c. NAME

APPU
ARUN (1 Score)
- d. alter table CUSTOMER rename to
Customer2020; (1 Score)
- e. delete from customer2020 where
AccNo=1003; (1 Score)

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