

SCHEME OF VALUATION

March - 2015

Subject Code : 41 (NS)

Subject : COMPUTER SCIENCE

Qn. No.	Marks
1. What is data bus?	
The bus which provides path to transfer data between CPU and main memory is called 1M data bus. (OR) The bus which transfers data between different components is called data bus.	1M
2. Which basic gate is also called as Inverter?	
NOT gate	1M
3. What is meant by primitive data structures?	
Data structure which is directly operated upon by machine level instruction is called primitive data structure.	1M
4. What is a member function?	
Member function is the set of operations that are performed on the objects.	1M
5. Write the declaration syntax for a pointer.	
data type * variable name;	1M

P.T.O.

(6)

41 (NS)

-2-



Qn. No.		Marks
6.	<p>Define primary key.</p> <p>The key (attribute) which is used to uniquely identify each record in a table is called primary key.</p>	1 M
7.	<p>Expand FTP.</p> <p>File Transfer Protocol</p>	1 M
8.	<p>What is network topology?</p> <p>The actual appearance or layout of network is called network topology.</p>	1 M
9.	<p>What is freeware?</p> <p>The freeware is a software which is available free of cost.</p> <p>(OR)</p> <p>The freeware is a software which is available free of cost and allows copying and further distribution.</p>	1 M
10.	<p>Mention the use of HTML.</p> <p>HTML is used to create webpages or websites.</p>	1 M



Qn. No.		Marks
	PART-B	
11.	★ Prove that $X + XY = X$	
	$LHS = X + XY$	
	$= X(1+Y) \rightarrow 1M$	
	$= X \cdot 1 \rightarrow 1M (\because 1+Y=1)$	2 M
	$= X = RHS \quad (\because X \cdot 1 = X)$	
	(OR)	
	(Proof by any method)	
12.	Define minterm and maxterm	
	minterm is a product of all the	
	literals within the logic system	1 M
	maxterm is a sum of all the	
	literals within the logic system	1 M
13.	Briefly discuss the classes in OOP	
	classes are user defined data types	
	in OOP A class can hold both data	
	and functions	2 M
	(OR)	
	A class is a way of grouping	
	of objects having similar characteristics	
	Once a class is defined, any number	
	of objects of that class are created	2 M
	(OR Any two points)	

(8)

41 (NS)

-4-

Qn. No.		Marks
14.	What is a destructor? Write its syntax. A destructor is a special member function that will be executed automatically when an object is destroyed. syntax: <code>~classname();</code>	1m
15.	Differentiate between ifstream and ofstream. ifstream provides input operations for file ofstream provides output operations for file	1m
16.	What is data independence? mention the types of data independence. Data independence is an ability to modify a schema at one level without affecting in another level. Types: i. Physical data independence ii. Logical data independence	1m
17.	Give the Syntax and example for delete command in SQL.	

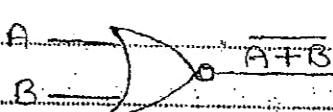


Qn. No.		Marks
	Syntax: DELETE FROM table name WHERE [condition];	1M
	Example: DELETE from employee WHERE age > 60; (Any example) (WHERE clause is optional)	1M
18.	Explain half duplex communication mode In half duplex communication mode each interface works as transmitter and receiver. But only one interface can transmit at a time. The transmitting interface will not receive while transmitting. <u>Ex: Walkie-Talkies</u> (Any 2 points - 2 M, Ex is optional)	2M
	P.A.R.T-C	
19.	What is a port? Explain serial port. The port is a socket used to connect external devices to the computer. Serial port: It is used to connect devices like mouse and modem. This port transfers data serially one bit at a time through a single wire. It is also known as Communication (COM) port. (Explanation) - any	2M

41 (NS)

-6-

10

Qn. No.	Marks															
20. Write the logic diagram and truth table for NOR gate.																
Logic diagram:																
	1M															
Truth table:																
<table border="1" data-bbox="665 829 1013 1121"> <thead> <tr> <th>A</th><th>B</th><th>$\bar{A} + \bar{B}$</th></tr> </thead> <tbody> <tr> <td>0</td><td>0</td><td>1</td></tr> <tr> <td>0</td><td>1</td><td>0</td></tr> <tr> <td>1</td><td>0</td><td>0</td></tr> <tr> <td>1</td><td>1</td><td>0</td></tr> </tbody> </table>	A	B	$\bar{A} + \bar{B}$	0	0	1	0	1	0	1	0	0	1	1	0	2M
A	B	$\bar{A} + \bar{B}$														
0	0	1														
0	1	0														
1	0	0														
1	1	0														
(Any two combinations - 1 m, all the combinations - 2 m)																
21. Write an algorithm for PUSH operation in Stack.																
Step 1: If $TOP = N$ then																
Print "Stack is full". exit.	1M															
Step 2: $TOP = TOP + 1$	1M															
Step 3: $STACK[TOP] = ITEM$	1M															
Step 4: Exit.																
22. What are the operations performed on pointers.																



Qn No.		Marks
	a) We can add an integer value to a pointer	
	b) We can subtract an integer value from a pointer	
	c) We can compare two pointers (Both point to the same array)	
	d) We can assign one pointer to another	
	(Both r. of same type)	
	e) We can subtract one pointer from another	
	(Both point to the same array)	
	f) We can increment a pointer variable	
	g) We can decrement a pointer variable	
	(Any 3 of the above - 3 marks)	
23.	Give the functions of put(), get()	
	and getline() w.r.t. text files.	
	put(): This function writes a single character to the text file.	1 M
	get(): This function reads a single character from the text file.	1 M
	getline(): This function reads an entire line of text from the text file.	1 M
24.	Briefly explain one-tier data base architecture.	
	In one-tier architecture, the user	

41 (NS)

-8-



Qn. No.		Marks
	<p>directly uses the only entity DBMS. Any changes made will be directly done on DBMS itself. This architecture is used by database designer and programmers.</p> <p>(Explanation 3 points - 3 m.)</p>	
25	<p>What is web browser? mention any two web browsers.</p> <p>A web browser is a software that navigates through the www and displays web pages.</p>	
	<p>(OR)</p> <p>A web browser is a software that is used to browse the information through internet.</p>	
	<p>Any two web browsers - 2m</p> <p>Internet Explorer, Netscape Navigator, Mozilla Firefox, opera, Safari, Google chrome.</p>	
	<p>(OR Any other web browsers)</p>	
26	<p>Explain any three text formatting tags in HTML.</p>	

(13)

41 (NS)

-9-

Qn. No.	Marks																												
<Big> - Increases the text size																													
<Small> - Decreases the text size																													
<H1> - writes text in biggest heading																													
 - writes text in bold letters																													
<I> - writes text in italic letters																													
<U> - Underlines the text																													
 - Displays the text in different size (Any 3 tags - 3M)																													
PART-D																													
27. Give the Boolean function																													
$F(w, x, y, z) = \sum(0, 4, 8, 9, 10, 11, 12, 13, 15)$																													
Reduce it by using Karnaugh-map																													
wx'yz' yz' yz' yz' yz																													
<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>wx</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td></td> </tr> <tr> <td>wx'</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td></td> </tr> <tr> <td>wx</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>0</td> <td></td> </tr> <tr> <td>wx'</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> <td></td> </tr> </table>	wx	1	0	0	0	1		wx'	1	0	0	0	1		wx	1	1	1	1	0		wx'	1	1	1	1	1		2M
wx	1	0	0	0	1																								
wx'	1	0	0	0	1																								
wx	1	1	1	1	0																								
wx'	1	1	1	1	1																								
Quad 1: $\bar{y}\bar{z}$																													
Quad 2: wz																													
Quad 3: $w\bar{x}$																													
Simplified expression:																													
$F(w, x, y, z) = \bar{y}\bar{z} + wz + w\bar{x}$	1M																												
28. Explain any five basic operations performed																													

(14)

41 (NS)

-10-



Qn. No.	Marks
on arrays	
1. Traversing : Accessing each element of the array exactly once.	
2. Searching : Finding the location of an element in the array.	
3. Sorting : Arranging the elements of the array.	
4. Insertion : Inserting an element into the array.	
5. Deletion : Deleting an element from the array.	
6. Merging : Combining two or more arrays to form a single array.	
(Any five operations - 5M)	
29. Write an algorithm to delete a data element from the queue.	
Step 1: If FRONT = NULL then	
Print "underflow"	1M
Exit	
Step 2: ITEM = QUEUE[FRONT]	1M
Step 3: If FRONT = REAR then	
FRONT = 0	
REAR = 0	2M
Else	
FRONT = FRONT + 1	1M
Step 4: Return	

Qn. No.		Marks
30.	<p>Explain the advantages of object oriented programming.</p> <ul style="list-style-type: none"> * The programs are modularized. * OOPS reduces code duplication. * Providing data security with data encapsulation. * Easier to develop complex software with inheritance. * Allows code reusability by linking code and object. * Separates object specification and object implementation. * Reduces software development time. * Communication with outside system is very simple with message passing. <p>(Any five advantages - 5 M)</p>	
31.	<p>What is class definition? Write its general syntax and example.</p> <p>A class definition is a process of naming a class and data variables.</p> <p>General Syntax:</p> <pre>class userDefinedName { Private;</pre>	

41 (NS)

-12-



Qn. No.		Marks
	Member data	
	Member functions	
	Protected:	
	Public:	
	Member data	
	Member functions	
	3.	
	Example:	
	Class Student	
	{	
	Private:	
	int regno;	
	char name[25];	
	float avg;	
	public:	
	void getdata();	
	void display();	
	3.	
	(Definition - 1 M, Syntax - 2 M, Example - 2 M)	
	(Any example)	
32.	What is an inline function? write a simple program for it.	
	The function which replaces a function call with the body of the function	1 M
	programming (Example: C++ Function)	

~~28~~

(17)

41 (NS)

-13-

Qn. No.	Marks
# include <iostream.h> inline int Square(int a) { return (a*a); }	2 M
Void main() { int x, y; x = Square(5); cout << "Square of 5 = " << x << endl; }	2 M
3 (or any other example)	
3.3 What is a constructor? Give the rules for writing a constructor function. A constructor is a special member function used to initialize the objects of a class automatically.	1 M
Rules for naming a constructor: (Any four) 4 M	
a) A constructor name should be same as the class name.	
b) There is no return type for constructor.	
c) It should be declared in public section.	
d) It is invoked automatically when objects are created.	
e) Address of the constructor cannot be referred.	
f) It can make use of new and delete operators.	

(8)

41 (NS)

-14-



An. No.	Marks
34. What is inheritance? Explain any two types. Inheritance is the capability of one class to inherit properties from another class. (OR) The process of forming a new class from an existing class is known as inheritance. 1 M	
Types of Inheritance: (Any two types) - 4 M 1. Single inheritance: A class is derived from a single class.	
<pre> Father ↓ Son </pre> 2. Multilevel inheritance: A class is derived from the class that is already derived. <pre> Grand Father ↓ Father ↓ Son </pre> (Other types: multiple inheritance, Hierarchical, Hybrid inheritance)	
35. What is data warehouse? Briefly explain its components. A data warehouse is a repository of an organization's electronically stored data. 7 M	
Components of data warehouse: (Any 4) - 4 M a) Data sources: It refers to any electronic	



Qn. No.		Marks
	a) Repository of information that contains data of interest for management.	
	b) Data Transformation: It receives data from the data sources, cleaned, standardized and loads it into the data repository.	
	c) Reporting: The warehouse data is made available to the organization's staff.	
	d) Metadata: It is data about data, which gives the information about the status of data.	
	e) Operations: It is the process of loading, manipulating and extracting data.	
36.	Explain the various group functions in SQL	
	i) COUNT(): It returns the number of rows in the table.	
	ii) DISTINCT(): It is used to select the distinct (unique) rows.	
	iii) MAX(): It returns the maximum value from a column.	
	iv) MIN(): It returns the minimum value from a column.	
	v) SUM(): It returns the sum of a numeric column.	
	vi) AVG(): It returns the average value of a numeric column.	

(Any five functions - 5 M)

41 (NS)

-16-

Qn. No.		Marks
37. Explain any five network devices.	<p>a) Modem: Device used to connect the system to Internet</p> <p>b) Ethernet card: device used for connecting network cable</p> <p>c) Hub: Device used to connect several computers together</p> <p>d) switch: device used to segment networks into different sub networks</p> <p>e) Repeater: Device that amplifies a signal being transmitted on the network</p> <p>f) Bridge: Device that links two networks together</p> <p>g) Router: Device like a bridge but can handle different protocols</p> <p>(Any five devices - 5m)</p>	



GOVERNMENT OF KARNATAKA
KARNATAKA STATE PRE-UNIVERSITY EDUCATION EXAMINATION BOARD
II YEAR PUC EXAMINATION
SCHEME OF VALUATION

Subject Code : 41

Subject: Computer Science

25

June-2015

Marks

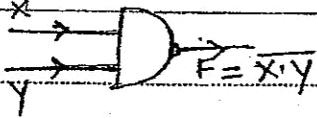
Qn. No.	Question	Marks
1.	What is a motherboard?	
A.	Mother board is the main circuit board inside a computer that connects the different components of a computer together.	
	OR	
	Mother board is a large printed circuit board, which has IC's, connectors, controllers, ports and other electronic components mounted on it.	1m
2.	What is a logic gate?	
A.	Logic gate is an electronic circuit which operates on one or more input signals and produces an output signal.	1m
3.	Give an example for linear data structure.	
A.	Stack, queue, linked lists (Any one ex)	1m Arrays
4.	What is a class?	
A.	A class is a group of objects having similar characteristics.	1m

An. No.		Marks
5.	Mention any one advantage of pointers. Using pointers: A. (i) It is possible to write efficient programs. (ii) Memory is utilized properly. (iii) Dynamically allocates and de-allocates memory. (iv) Easy to deal with hardware components. (v) Establishes communication between prg & data (Any one adv)	1m
6.	What is a database?	
A	A database is a collection of logically related data	1m
7.	Expand URL	
A	Uniform Resource Locator	1m
8.	Define bus topology.	
A	A single length of the transmission medium onto which the various nodes are attached. OR If every work station is connected to a main cable called the bus, then it is called as bus topology.	1m
9.	Name any one web browser.	
A	Internet explorer, Mozilla Firefox, Google chrome (Any one lob) or (Any other)	1m

Qn. No.	Marks
10. Write any one HTML tag.	
A $\langle \text{html} \rangle, \langle \text{head} \rangle, \langle \text{title} \rangle, \langle \text{body} \rangle$ (Any one tag or any other)	1m
<u>PART-B</u>	
11. State and prove involution law.	
A Statement: complement of a variable, when complemented again, will get the same variable i.e $\bar{\bar{x}} = x$	
Proof: If $x=0, \bar{x}=1, \bar{\bar{x}}=0=x$	
If $x=1, \bar{x}=0, \bar{\bar{x}}=1=x$	
(Statement - 1 mark, proof - 1 mark)	2m
12. What is principle of duality? Give an example	
A States that, we can derive a boolean relation from another boolean relation by performing the following steps: (i) changing each AND(\wedge) with OR(\vee), each OR(\vee) with AND(\wedge). (ii) Replace each 0 with 1 and each 1 with 0.	
Ex: $0+x = 1 \cdot x$ or $1 \cdot x = 0+x$	
(Statement - 1 mark; example - 1 mark)	2m
13. Differentiate between base class & derived class	
A The class whose properties are inherited by another class is called base class (1 mark) The class that inherits properties from base class is called derived class. (1 mark)	2m
(Each def ⁿ - 1 mark)	

Qn. No.		Marks
14.	Mention different types of constructors.	
A.	i) Default constructor	
	ii) Parameterized constructor	
	iii) Copy constructor	2
	(Any two types - each 1 mark)	
15.	What is a stream? Mention any one stream used in C++.	
A.	A stream is a flow of data at the lowest level.	
	ifstream, ofstream, fstream (Any one)	
	(Definition - 1 mark, one stream - 1 mark)	2
16.	Write any two advantages of database system.	
A.	- Centralized data management	
	- controlled data redundancy.	
	- enforcing data integrity.	
	- Data sharing.	
	- Ease of application development.	
	- Data security.	
	- Multiple user interface.	
	- Back up and recovery.	2
	(Any two advantages - each 1 mark)	
17.	Mention any two ^{data} types used in SQL.	
A.	Int, number, Float, Real, datetime,	
	Date, Time, char, Varchar	
	(Any two datatypes - each 1 mark)	

Qn. No.		Marks
18.	Explain circuit switching.	
A.	<p>It is a type of switching technique wherein first the complete physical connection between two computers is established and then data is transmitted from the source computer to the destination computer.</p> <p>That is when a computer places a telephone call the switching equipment within the telephone system sets out a physical copper path all the way from sender telephone to the receiver's telephone.</p> <p>The important property of this technique is to setup an end to end path between computers before any data can be sent.</p> <p>(Any two points - each point 1 mark)</p>	2m
PART-C		
19.	What is the function of UPS? Mention different types of UPS.	
A.	UPS supplies power from its battery to maintain power in the event of a power failure.	
	Types - online UPS, stand-by UPS	
	(function - 1 mark; two types - 2 marks)	3m
20.	Write the logic diagram and truth table for a NAND gate.	

Qn. No.		Marks															
20.A	 logic (diagram - 1 mark)																
	(Truth table - 2 marks)																
	<table border="1"> <thead> <tr> <th>X</th> <th>Y</th> <th>F = X · Y</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>1</td> <td>1</td> <td>0</td> </tr> </tbody> </table>	X	Y	F = X · Y	0	0	1	0	1	1	1	0	1	1	1	0	
X	Y	F = X · Y															
0	0	1															
0	1	1															
1	0	1															
1	1	0															
		3m															
21	Explain the various operations performed on queue data structure.																
A.	Queue() : creates a new queue that is empty. enqueue() : Adds a new item to the rear of the queue. dequeue() : removes the front item from the queue. isempty() : tests to see whether the queue is empty. Size() : returns the number of items in queue (Any three operations - each 1 mark)	3m															
22.	What is array of pointers? Give an example.																
A.	Array of pointers means collection of addresses. Ex: int *iptr[3] → (1 mark) $iptr[0] = \&i;$ $iptr[1] = \&j;$ → (1 mark) $iptr[2] = \&k;$ (Definition - 1 mark, Example - 2 marks)	3m															

Qn. No.		Marks
23	<p>List the different modes of opening a file with their meaning in c++.</p>	
A.	<ul style="list-style-type: none"> ios::app append to end of file ios::in open file for reading only. ios::out open file for writing only. ios::ate open file for updation and move the file pointer to end of file. ios::binary - opening a binary file ios::trunc on opening, delete the contents of file. <p>(Any three modes - each mode 1 mark) 3m or any other</p>	

24 Write the different symbols used in E-R diagram, with their significance.

A.

Entity

- An entity can be any object, place, person or class. It is represented by a rectangle.

Weak entity

- Weak entity is an entity that depends on another entity. It is represented by double rectangle.

Attribute

- An attribute describes a property or characteristics of an entity. It is represented by an ellipse.

Relationship

- A relationship describes relations between entities. It is represented by a diamond.

(Any three symbols - each 1 mark) a diamond with meaning

Qn. No.		Marks
25.	What is E-commerce? Explain any two types.	
A.	E-commerce is the trade of goods and services with the help of telecommunication and computers.	
	B2B - The exchange of services, information and/or products from one business to another business partners.	
	B2C - The exchange of services, information and/or product from a business to a consumer.	
	C2B - Customer directly contacts with business Vendors.	
	C2C - Electronic commerce is an internet facilitated form of business between business .	
	(Definition - 1 mark, Any two types - each 1 mark) 3m	
26.	What is web-hosting? Mention different types of web-hosting.	
A.	Web-hosting is a means of hosting webserver application on a computer and this application is available to any web-server client.	
	OR	
	Web-hosting is a type of Internet hosting service that makes web-sites and webpages.	

Qn. No.		Marks																																				
	<p>available to many users via the world wide web. Different web-hosting services are</p> <ul style="list-style-type: none"> (i) Free hosting. (ii) Virtual or shared hosting. (iii) Dedicated hosting. (iv) co-location hosting. <p>(Definition - 1 mark, Any two types - 2 marks) 3m</p>																																					
27.	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th data-bbox="487 869 582 937">AB</th> <th data-bbox="582 869 677 937">CD</th> <th data-bbox="677 869 772 937">$\bar{C}\bar{D}$</th> <th data-bbox="772 869 868 937">$\bar{C}D$</th> <th data-bbox="868 869 963 937">CD</th> <th data-bbox="963 869 1058 937">$C\bar{D}$</th> </tr> </thead> <tbody> <tr> <td data-bbox="487 937 582 1004">$A\bar{B}$</td> <td data-bbox="582 937 677 1004">0</td> <td data-bbox="677 937 772 1004">1</td> <td data-bbox="772 937 868 1004">1</td> <td data-bbox="868 937 963 1004">1</td> <td data-bbox="963 937 1058 1004">2</td> </tr> <tr> <td data-bbox="487 1004 582 1071">$\bar{A}B$</td> <td data-bbox="582 1004 677 1071">1</td> <td data-bbox="677 1004 772 1071">4</td> <td data-bbox="772 1004 868 1071">5</td> <td data-bbox="868 1004 963 1071">1</td> <td data-bbox="963 1004 1058 1071">7</td> </tr> <tr> <td data-bbox="487 1071 582 1138">AB</td> <td data-bbox="582 1071 677 1138">1</td> <td data-bbox="677 1071 772 1138">12</td> <td data-bbox="772 1071 868 1138">13</td> <td data-bbox="868 1071 963 1138">1</td> <td data-bbox="963 1071 1058 1138">15</td> </tr> <tr> <td data-bbox="487 1138 582 1206">$A\bar{B}$</td> <td data-bbox="582 1138 677 1206">8</td> <td data-bbox="677 1138 772 1206">1</td> <td data-bbox="772 1138 868 1206">9</td> <td data-bbox="868 1138 963 1206">1</td> <td data-bbox="963 1138 1058 1206">11</td> </tr> <tr> <td data-bbox="487 1206 582 1273"></td> <td data-bbox="582 1206 677 1273"></td> <td data-bbox="677 1206 772 1273"></td> <td data-bbox="772 1206 868 1273"></td> <td data-bbox="868 1206 963 1273"></td> <td data-bbox="963 1206 1058 1273">10</td> </tr> </tbody> </table> <p>Octet = D } 2 marks</p> <p>Quad = $B\bar{C}$ } 2 marks</p> <p>pair = $C\bar{A}\bar{B}$ }</p> <p>Reduced expression is</p> $F(A, B, C, D) = D + B\bar{C} + C\bar{A}\bar{B} \quad (1 \text{ mark})$ <p>(writing K-map 2 grouping - 2 marks)</p> <p>Reduced expression - 2 marks</p> <p>Sum of product exp - 1 mark) 5m</p>	AB	CD	$\bar{C}\bar{D}$	$\bar{C}D$	CD	$C\bar{D}$	$A\bar{B}$	0	1	1	1	2	$\bar{A}B$	1	4	5	1	7	AB	1	12	13	1	15	$A\bar{B}$	8	1	9	1	11						10	
AB	CD	$\bar{C}\bar{D}$	$\bar{C}D$	CD	$C\bar{D}$																																	
$A\bar{B}$	0	1	1	1	2																																	
$\bar{A}B$	1	4	5	1	7																																	
AB	1	12	13	1	15																																	
$A\bar{B}$	8	1	9	1	11																																	
					10																																	
28.	<p>Explain the memory representation of stack data structure using arrays.</p>																																					

Qn. No.	Marks												
A. Stack can be represented using a one-dimensional array. The elements into the stack are stored in a sequential order from the first location of the array. A pointer TOP contains the location of the top element of the stack. A variable MAX contains the maximum number of elements that can be stored in the stack. (2 marks)													
The condition $TOP = MAX$ indicates that the stack is full, which represents "Overflow" condition and $TOP = \text{NULL}$ indicates that the stack is empty, which represents "Underflow".													
<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="padding: 5px;">0</td> <td style="padding: 5px;">1</td> <td style="padding: 5px;">2</td> <td style="padding: 5px;">← Index</td> </tr> <tr> <td style="padding: 5px;">1</td> <td style="padding: 5px;">2</td> <td style="padding: 5px;">•</td> <td style="padding: 5px;"></td> </tr> <tr> <td style="padding: 5px; text-align: center;">↑ TOP</td> <td style="padding: 5px; text-align: center;">→</td> <td style="padding: 5px;"></td> <td style="padding: 5px; text-align: right;">(1 mark) 3m</td> </tr> </table>	0	1	2	← Index	1	2	•		↑ TOP	→		(1 mark) 3m	(2 marks)
0	1	2	← Index										
1	2	•											
↑ TOP	→		(1 mark) 3m										
29. Write an algorithm for binary search.													
A. Step 1 : Set $R = LB$, $E = UB$ } $LOC = -1$ } (1 mark)													
Step 2 : while ($B \leq E$)													
$M = \text{int}(B+E)/2$	} (1 mark)												
if ($ELE = A[M]$)	} (1 mark)												
$LOC = M$	}												
Goto Step 3	}												
else if ($ELE < A[M]$)	}												

Qn. No.	Code	Marks
	$E = M-1$	
	else	(1 mark)
	$B = M+1$	
	(end of while)	
	Step 3: if ($Loc >= 0$)	
	print Loc	(1 mark)
	else	
	print "Search is unsuccessful"	
	Step 4: Exit	5 m
30.	Mention any five applications of oop.	
A.	<ul style="list-style-type: none"> - Computer graphic applications - object-oriented database - user interface design such as windows - Real-time systems - simulation and modelling - Artificial intelligence and expert systems - CAD/CAM Software 	
	(Any 5 applications - each 1 mark)	5 m
31.	What are access specifiers? Explain any two with examples.	
A.	<p>Access specifiers defines the scope of the member data and member function (1 m).</p> <p><u>Protectors:</u> <u>protectors:</u> we use to access protection for hiding data and functions.</p>	
		(1/2 mark)

Qn. No.		Marks
	<p>private : The data members declared under private are accessible only within the class. (2 marks)</p>	
	<p>Ex: private: int x; float y;</p>	
	<p>public: The data members declared under public are accessible by any function outside the class also. (2 marks)</p>	
	<p>Ex: class account</p>	
	<pre> { private: int accno; char name[20]; public: void getdata(); void displaydata(); } </pre>	5 m
	<p>(definition -1 mark; datatypes -2 marks each)</p>	
32.	<p>What is function overloading? Explain the need for overloading.</p>	
A.	<p>Function overloading is the process of defining same function name to carry out similar types of activities with various data items.</p>	
	<p>OR</p>	
	<p>Function overloading means two or more functions have same name, but differ in</p>	

Qn. No.		Marks
	<p>the number of arguments or data type of arguments.</p> <p>The need for function overloading are</p> <ul style="list-style-type: none"> - code can be executed faster - easy to understand the flow of information and debug. - code maintenance is easy - easy interface between programs and real world objects. <p>(definition - 1 mark, 4 needs - 4 marks) 5m</p>	
33.	<p>Explain destructor with Syntax and example</p> <p>A. A destructor is a special member function that will be executed automatically when an object is destroyed. (1 mark)</p> <p>It will have the same name of constructor but preceded by a tilde (~)</p> <p>Syntax: class classname</p> <pre> { private: // data variables; } public: classname(); ~classname(); } </pre>	2 marks

Qn. No.		Marks
	Ex: class counter { private: int counter; public: counter() { counter=0; } ~counter() { } };	2 marks
34.	(definition -1 mark, Syntax -2 marks, Ex - 2 marks)	5 m
34.	What is inheritance? Mention its advantages. A. Inheritance is the capability of one class to inherit properties from another class. Advantages: — Reusing existing code. — Faster development time. — easy to maintain — easy to extend — memory utilization.	
35.	(Definition -1 mark, Any four advantages -4 marks) 5 m	
35.	Define the following database terms. i) Datamodel — describes how the data is represented and used.	

Qn. No.		Marks
(ii)	Tuple : Each record of a table OR Row in a table.	
(iii)	Domain : Set of values for an attribute in that column.	
(iv)	primary key : The key that uniquely identifies each record in a table.	
(v)	Foreign key : The key that matches the primary key column of another table (Each definition - 1 mark)	5 m
36.	What is data definition language? Explain SELECT and UPDATE commands.	
A	DDL defines the conceptual schema providing a link between the logical and the physical structures of the database. (1 mark)	
	<u>SELECT Command</u> : is used to fetch the data from a database table which returns data in the form of result table. (1 mark)	
	Syntax : <u>SELECT column1, column2... coln FROM tablename ;</u> (1 mark)	
	Here col1, col2... coln are the fields of a table whose values we want to fetch.	
	<u>UPDATE Command</u> : is used to modify the existing records in a table. (1 mark)	
	Syntax : <u>UPDATE tablename SET column1 = Value1, col2 = Val2... coln = ValueN WHERE [condition]</u> (1 mark)	5m

(definition - 1 mark, Each command - 2 marks each)

Qn. No.		Marks
37.	<p>Give the measures for preventing Virus.</p> <p>A. The measures taken to prevent viruses are</p> <ul style="list-style-type: none"> - Never use a CD without scanning for virus. - Always scan downloaded files from internet. - Never boot any pc from a floppy disk, unless it is virus free. - Write-protect the disks. - Use licensed software. - Password protect a pc to prevent unattended modification. - Install and use antivirus software. - Keep anti-virus software up-to date. <p>(Any five measures - each 1 mark)</p>	5m

X ————— X

SARAS DYAN ACADEMY (RVVernekar) Dandeli Uttarakannada