

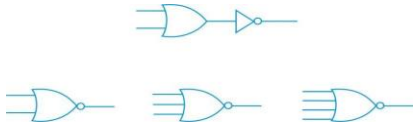
GOVERNMENT OF KARNATAKA
KARNATAKA SCHOOL EXAMINATION AND ASSESSMENT BOARD
II YEAR PUC SUPPLEMENTARY EXAMINATION MAY/JUNE – 2023
SCHEME OF VALUATION

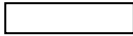


SUBJECT : COMPUTER SCIENCE

SUBJECT CODE : 41

PART A		
I. Select the correct answer from the choices given.		
1	The CPU is fabricated as a Single Integrated Circuit (IC) chip and is also known as the c. Microprocessor	1M
2	The Boolean algebra is also called _____. b. Switching algebra	1M
3	Which is the Universal gate? a. NAND	1M
4	Which of the following is non-primitive data structures? d. array	1M
5	The data elements in a class are called _____. a. member data	1M
6	_____ is although not a member function has full access right to the private and protected members of the class. a. Friend function	1M
7	Parameterized constructor can be invoked by _____. c. Explicit call	1M
8	If a class is derived from a single base class it is called as _____ inheritance. a. single	1M
9	_____ operator is used to free dynamic memory. b. delete	1M
10	_____ is also called the tuple. d. Records	1M
11	Data types not in SQL is _____. d. are	1M
12	Which of the following is not a communication modes? d. command	1M
13	MAN stands for _____. a. Metropolitan area networks	1M
14	The documents residing on websites are called _____. b. web pages	1M
15	Identify the text formatting tags in HTML. d. none of the above	1M
II Fill in the blanks choosing the appropriate word/words from those given in the brackets		
16	Information is processed data with some definite meaning.	1M
17	Example for popular DBMS is a MySQL .	1M
18	File is basic unit of storage in computer system.	1M
19	Primary Key is a key that uniquely identify each record in a table.	1M
20	Protection of data is the Security	1M

PART B		
III	Answer any FOUR questions. Each question carries 2 marks.	
21	<p>Prove algebraically that $X + XY = X$.</p> <p>$= X + XY$ $= X(1+Y)$ $= X.1$ $= X$</p>	2M
22	<p>What is a minterm and maxterm?</p> <p>Minterm : Minterm is product of all the literals (with or without the bar) within the logic system.</p> <p>Maxterm : Maxterm is sum of all the literals (with or without the bar) within the logic system.</p>	2M
23	<p>Define any two characteristics of object oriented programming.</p> <ul style="list-style-type: none"> • Objects • Classes • Data abstraction • Data encapsulation • Inheritance • Overloading • Polymorphism • Dynamic binding • Message passing <p>Any suitable two characteristics definition , each definition 1 mark.</p>	2M
24	<p>What is a destructor? Give symbol used for destructor .</p> <p>Destructor is a special member function. It will be called automatically when an object is destroyed.</p> <p>Tilde (~) symbol used for destructor.</p> <p>any suitable definition 1 mark , symbol 1 mark.</p>	2M
25	<p>Mention any two functions that belong to if stream class.</p> <ul style="list-style-type: none"> • get() function • getline() function • read() function <p>Or any 2 suitable function, each carries 1 mark.</p>	2M
26	<p>Give any two application of database .</p> <p>Banking, Water meter billing , Rail and Airlines, Colleges , Credit card transactions, Telecommunication, Finance, Sales , Manufacturing , Human resources,</p>	2M

	any suitable 2 application, each carries 1 mark																
27	<p>Give the syntax and example for DROP command in SQL.</p> <p>Syntax : DROP TABLE table_name;</p> <p>Ex : drop table employees;</p> <p>Syntax 1 mark, any suitable example 1 mark.</p>	2M															
28	<p>Mention any two network goals.</p> <ol style="list-style-type: none"> 1. Resource Sharing 2. Reliability 3. Cost Factor 4. Communication Medium <p>any 2 suitable points, each carries 1 mark.</p>	2M															
PART C																	
IV	Answer any four questions. Each question carries 3 marks.																
29	<p>What is cache memory? Mention different types of cache memory.</p> <p>Cache memory is a high speed memory available inside CPU to speed up access of data and instructions stored in RAM memory.</p> <p>or any suitable definition, 1 mark.</p> <p>Types: L1 cache L2 cache L3 cache</p> <p>any 2 types each carries, 1 mark.</p>	3M															
30	<p>Write the logic symbol and truth table of NOR gate.</p> <div style="text-align: center;">  </div> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>X</th> <th>Y</th> <th>$F = \overline{X+Y}$</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>0</td> <td>1</td> <td>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> <p>Symbol 1 mark, truth table 2 mark.</p>	X	Y	$F = \overline{X+Y}$	0	0	1	0	1	0	1	0	0	1	1	0	3M
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0	0	1															
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31	<p>Mention any three applications of stack.</p> <ul style="list-style-type: none"> • Backtracking • Quick sort • To solve tower of Hanoi • Stock san problem • Runtime memory management <p>Or any 3 relevant applications, each carries 1 mark.</p>	3M															

32	<p>Give any three advantages of pointer.</p> <ul style="list-style-type: none"> • It is possible to write efficient programs. • Memory is utilized properly. • Dynamically allocate & deallocate memory. • Easy to deal with hardware components. • Establishes communication between program and data. <p>Any 3 points, each carries 1 mark.</p>	3M
33	<p>What is a file? Mention different types of data file.</p> <p>The data or information stored under a specific name on a storage device is called a file.</p> <p>Or any suitable definition. 1 mark.</p> <p>Types: 1. Text file 1 mark</p> <p>2. Binary file 1 mark</p>	3M
34	<p>Mention any three components of E-R Diagram.</p> <p>1. Entity </p> <p>2. Attribute </p> <p>3. Relationship </p> <p style="text-align: right;">Each carries : 1 mark</p>	3M
35	<p>Define e-commerce. Mention any two types of e-commerce.</p> <p>E-commerce is the trade of goods and services with the help of telecommunication and Computers</p> <p>Or any suitable definition 1 mark</p> <p>Types:-</p> <ol style="list-style-type: none"> 1. Business-to-Business 2. Business-to-Consumer 3. Consumer-to-Business 4. Consumer-to-Consumer <p>Any two types, Each carries 1 mark.</p>	3M
36	<p>Explain the structure of HTML.</p> <p><code><html></code> Marks the beginning of your HTML</p> <p><code><head></code> Begins the heading section of an HTML document</p> <p><code><title> ... </title></code> Gives an HTML document a title that appears on the browser menu bar, also will appear on search engines or bookmarks referencing your site (must appear between the <code><HEAD> ... </HEAD></code> tags; should be straight text, no tags)</p> <p><code></head></code> Defines the end of the heading</p> <p><code><body></code> Defines the body of an HTML document (text contained within the <code><BODY> ... </BODY></code> tags appears in the main browser window). Can be used with "BGCOLOR", "TEXT", "LINK", and "VLINK" attributes</p> <p><code></body></code></p> <p><code></html></code> Defines the end of your HTML document</p> <p>Any three points, each carries 1 mark.</p>	3M

PART – D

V. Answer any SIX questions. Each question carries 5 marks.

37 **Given the Boolean function $f(A, B, C, D) = \sum (0, 4, 8, 9, 10, 11, 12, 13, 15)$. Reduce it by using K-map.**

	$\overline{C}\overline{D}$	$\overline{C}D$	CD	$C\overline{D}$	
$\overline{A}\overline{B}$	1				} 2 Marks
$\overline{A}B$	1				
AB	1	1	1		
$A\overline{B}$	1	1	1	1	

Quad 1 = $\overline{C}\overline{D}$
 Quad 2 = AD
 Quad 3 = $A\overline{B}$
 Reduced form: $\overline{C}\overline{D} + AD + A\overline{B}$

Correct expression 3 marks

38 **Write an algorithm to insert an element into the array.**

Step 1 : FOR I =N-1 down to P A[I+1] = A[I] End of for	}	3 marks
Step 2 : A[P]=ITEM		1 mark
Step 3 : N=N+1		1 mark
Step 4 : Exit		

39 **Explain any five operations performed on queue**

- queue()** Creates a new queue that is empty.
- enqueue(item):** Adds a new item into the rear of 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 the queue.

Each carries 1 mark

40 **Write any five applications of Object Oriented Programming.**

- Computer graphic applications
- CAD/CAM software
- User Interface design such as windows
- Real-time systems
- Simulation and modeling
- Artificial intelligence and expert systems
- Object-oriented Database

Any five applications each carries 1 mark

41	<p>Different between procedural programming and Object Oriented Programming.</p> <table border="1" data-bbox="352 129 1034 369"> <thead> <tr> <th data-bbox="352 129 692 197">Procedural programming</th> <th data-bbox="692 129 1034 197">Object oriented programming</th> </tr> </thead> <tbody> <tr> <td data-bbox="352 197 692 369">Variables User-defined data types Structure members Functions Function call</td> <td data-bbox="692 197 1034 369">Objects Classes Instance variables Methods Message passing</td> </tr> </tbody> </table> <p>Or any suitable difference each– 1 mark</p>	Procedural programming	Object oriented programming	Variables User-defined data types Structure members Functions Function call	Objects Classes Instance variables Methods Message passing	5M
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Variables User-defined data types Structure members Functions Function call	Objects Classes Instance variables Methods Message passing					
42	<p>Define function overloading. Give the need for function overloading.</p> <p>A function name that has several definitions with respect to the number of arguments and type of arguments is known as function overloading.</p> <p>or any suitable definition, carries 1 mark.</p> <p>Need for function overloading</p> <ol style="list-style-type: none"> 1. When different functions are created for different operations, then user has to call respective function depending on the situation. Instead, for different situations if the same function is called with different arguments using function overloading, then the compiler automatically decides about the appropriate function by comparing the argument types used in the call to the function and calls the required function. Thus the code is executed faster. 2. It is easier to understand the flow of information and debug. 3. Code maintenance is easy. 4. Easier interface between programs and real world objects <p>each carries 1 mark.</p>	5M				
43	<p>Write the rules for writing a constructor function.</p> <ol style="list-style-type: none"> 1. A Constructor always has name that is same as the class name of which they are the members. This will help the compiler to identify that they are the constructors. 2. There is no return type for constructors (not even void). Since, the constructor is called automatically by the system, there is no program for it to return anything to; a return value would not make sense. 3. A constructor should be declared in public section. 4. A constructor is invoked automatically when objects are created. Constructors can have default arguments. 5. It is not possible to refer to the address of the constructors. 6. The constructors make implicit calls to the operators new and delete when memory allocation is required. <p>Any five points, each carries 1 mark.</p>	5M				
44	<p>Mention any five advantages of inheritance.</p> <ol style="list-style-type: none"> 1. Reusing existing code 2. Faster development time 3. Easy to maintain 4. Easy to extend 5. Memory utilization <p>each carries 1 mark.</p>	5M				

45	<p>Differentiate between manual and computerized electronic data processing.</p> <table border="1" data-bbox="268 107 1361 533"> <thead> <tr> <th data-bbox="268 107 807 185">Manual Data processing</th> <th data-bbox="812 107 1361 185">Computerized Electronic Data processing</th> </tr> </thead> <tbody> <tr> <td data-bbox="268 192 807 264">The Volume of the data, which can be processed, is limited in a desirable time.</td> <td data-bbox="812 192 1361 264">The volume of data which can be processed can be very large.</td> </tr> <tr> <td data-bbox="268 271 807 342">Manual data processing requires large quantity of paper</td> <td data-bbox="812 271 1361 342">Reasonable less amount of paper is used.</td> </tr> <tr> <td data-bbox="268 349 807 421">The speed and accuracy at which the jobs executed is limited.</td> <td data-bbox="812 349 1361 421">The job executed is faster and Accurate.</td> </tr> <tr> <td data-bbox="268 427 807 454">Labour cost is high.</td> <td data-bbox="812 427 1361 454">Labour cost is economical.</td> </tr> <tr> <td data-bbox="268 461 807 533">Storage medium is paper</td> <td data-bbox="812 461 1361 533">Storage medium is Secondary storage medium.</td> </tr> </tbody> </table> <p>Any suitable difference 1 mark,</p>	Manual Data processing	Computerized Electronic Data processing	The Volume of the data, which can be processed, is limited in a desirable time.	The volume of data which can be processed can be very large.	Manual data processing requires large quantity of paper	Reasonable less amount of paper is used.	The speed and accuracy at which the jobs executed is limited.	The job executed is faster and Accurate.	Labour cost is high.	Labour cost is economical.	Storage medium is paper	Storage medium is Secondary storage medium.	5M			
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46	<p>Explain any five group functions in SQL with example.</p> <p>a) COUNT(): This function returns the number of rows in the table Example: SELECT COUNT(*) FROM employee;</p> <p>b) MAX(): This function is used to get the maximum value from a column Example: SELECT MAX(salary) FROM employee;</p> <p>c) MIN(): This function is used to get the minimum value from a column. Example: SELECT MIN(salary) FROM employee;</p> <p>d) AVG: This function is used to get the average value of a numeric column Example: SELECT AVG(salary) FROM employee;</p> <p>e) SUM(): This function is used to get the sum value of a numeric column Example: SELECT SUM(salary) FROM employee;</p> <p>f) DISTINCT(): This function is used to select the distinct rows. SELECT COUNT (DISTINCT name) FROM employee;</p> <p>Any suitable definition or example, each carries 1 mark.</p>	5M															
47	<p>What is network topology? Differentiate between a LAN and a WAN.</p> <p>The actual appearance or layout of networking.</p> <p>or any suitable definition, carries 1 mark.</p> <table border="1" data-bbox="252 1485 1361 1742"> <thead> <tr> <th data-bbox="252 1485 316 1541"></th> <th data-bbox="316 1485 887 1541">LAN</th> <th data-bbox="887 1485 1361 1541">WAN</th> </tr> </thead> <tbody> <tr> <td data-bbox="252 1547 316 1592">1</td> <td data-bbox="316 1547 887 1592">Diameter of not more than a few kilometers</td> <td data-bbox="887 1547 1361 1592">Span entire countries</td> </tr> <tr> <td data-bbox="252 1599 316 1644">2</td> <td data-bbox="316 1599 887 1644">A total data rate of at least several mbps</td> <td data-bbox="887 1599 1361 1644">Data rate less than one mbps</td> </tr> <tr> <td data-bbox="252 1650 316 1695">3</td> <td data-bbox="316 1650 887 1695">Complete ownership by a single organization</td> <td data-bbox="887 1650 1361 1695">Owned by multiple organizations</td> </tr> <tr> <td data-bbox="252 1702 316 1747">4</td> <td data-bbox="316 1702 887 1747">Very low error rates</td> <td data-bbox="887 1702 1361 1747">Comparatively higher error rates</td> </tr> </tbody> </table> <p>Or any 4 suitable difference, each carries 1 mark.</p>		LAN	WAN	1	Diameter of not more than a few kilometers	Span entire countries	2	A total data rate of at least several mbps	Data rate less than one mbps	3	Complete ownership by a single organization	Owned by multiple organizations	4	Very low error rates	Comparatively higher error rates	5M
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