



**G . T . N . ARTS COLLEGE ( AUTONOMOUS )**  
(Affiliated to Madurai Kamaraj University)  
(Accredited by NAAC with 'B' Grade)

**END SEMESTER EXAMINATION - APRIL 2019**

Programme : B.Sc. Information Technology  
Course Code : 17UITA31  
Course Title: Digital Principles &  
Computer Organisation

Date : 08.05.2019  
Time : 2:00 p.m. to 5:00 p.m.  
Max Marks : 75

**Section - A**

**[10 X 1 = 10 ]**

**Answer ALL the Questions.  
Choose the Correct Answer**

1. The radix of an octal number is \_\_\_\_\_  
 [a] 2 [b] 7  
 [c] 8 [d] 10
2. A binary number with four bit is called \_\_\_\_\_  
 [a] Byte [b] nibble  
 [c] gate [d] megabyte
3. Group of four 1's that are horizontally or vertically adjacent is called \_\_\_\_\_  
 [a] Quad [b] pair  
 [c] redundant [d] octet
4. 1's complement of 1010 is \_\_\_\_\_  
 [a] 1011 [b] 00101  
 [c] 0101 [d] 11110

5. \_\_\_\_\_ means one to many.

- [a] demultiplexer. [b] multiplexer  
[c] decoder [d] encoder

6. How many outputs are on a BCD decoder?

- [a] 4 [b] 16 [c] 8 [d] 10

7. \_\_\_\_\_ counters are sometimes called asynchronous counters.

- [a] ring [b] parallel [c] ripple [d] serial

8. \_\_\_\_\_ is a storage device which retrieves the last item stored as first item.

- [a] Address map [b] Stack  
[c] Interrupt [d] Subroutine

9. In \_\_\_\_\_ mode, the operand is specified in the instruction itself.

- [a] Register [b] Relative address  
[c] Immediate [d] Implied

10. For converting virtual circuit address into physical address the programs are divided into \_\_\_\_\_.

- [a] pages [b] frames  
[c] segment [d] blocks

**Section – B**

**Answer ALL the Questions.**

**[ 5 X 7 = 35 ]**

11. a) Convert the following

- i) Binary to Decimal –  $(10110.101)_2$   
ii) Hexadecimal to Binary –  $(2E.C)_{16}$   
iii) Decimal to Hexadecimal –  $(7018.125)_{10}$ .

**[OR]**

b) Write about Basic Logic Gates.

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12. a) Simplify the Boolean Equation :  $F = C(B+C)(A+B+C)$ .

**[OR]**

b) Explain about 2's complement representation with examples.

13. a) Write a short note about seven segment decoders.

**[OR]**

b) Write and explain the Exclusive OR gates.

14. a) Explain Indirect addressing that is used in Instruction code.

**[OR]**

b) Explain about control memory organization.

15. a) What is meant by data transfer instruction? Explain.

**[OR]**

b) Define control word. List Encoding of Register Selection field and Encoding of ALU operation.

**Section – C**

**[ 3 X 10 = 30 ]**

**Answer any THREE Questions.**

16. Explain briefly about NOR Gate with its logical diagram and truth table.

17. Briefly explain about Arithmetic Building Blocks

18. Define Multiplexer and explain any two types with neat diagram and truth tables.

19. List and explain registers of basic computer.

20. Explain Addressing modes with example.

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# **G.T.N. ARTS COLLEGE(Autonomous)**

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### **DEPARTMENT OF INFORMATION TECHNOLOGY**

**EXTERNAL QUESTION PAPERS(ODD&EVEN)**

**(Academic year 2018-2019)**

Reg. No:

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## G.T.N. ARTS COLLEGE (AUTONOMOUS)

(Affiliated to Madurai Kamaraj University)

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### END SEMESTER EXAMINATION - NOVEMBER 2018

Class : I B.Sc. IT

Date : 16.11.2018

Course Code: 17UITC11

Time : 10.00 a.m to 1.00 p.m

Course Title : Fundamentals of IT and  
HTML

Max Marks : 75

#### SECTION - A

[10 X 1 = 10]

Answer ALL the Questions.

Choose the Best Answer.

1. A set of prerecorded instruction executed by a computer is called \_\_\_\_\_.  
[a] Action [b] Hardware  
[c] Program [d] Method
2. Which of the following is not an input device?  
[a] Keyboard [b] Mouse  
[c] Microphone [d] Monitor
3. Magnetic tape is an example for \_\_\_\_\_ media.  
[a] Irregular [b] Regular  
[c] Sequential [d] Random
4. The input device used mostly for computer games is the \_\_\_\_\_.  
[a] Light pen [b] Keyboard  
[c] Scanner [d] Joystick
5. An eight bit monitor represents each pixel with \_\_\_\_\_ bits.  
[a] 8 [b] 16  
[c] 32 [d] 64

o. \_\_\_\_\_ topology consists of a main run of cable with a terminator at each end.

[a] Tree

[b] Mesh

[c] Ring

[d] Bus

7. What tag is used for hyper link?

[a] <I>

[b] <b>

[c] <a>

[d] <u>

8. What attribute is used in the unordered list \_\_\_\_\_.

[a] Plain

[b] Blank

[c] Break

[d] None

9. \_\_\_\_\_ are used to get inputs form users.

[a] Table

[b] List

[c] Forms

[d] Frames

10. The \_\_\_\_\_ button is used at the end of the user input.

[a] Set

[b] Reset

[c] Submit

[d] OK

### SECTION - B

[ 5 X 7 = 35 ]

Answer ALL the Questions.

11. a) Explain the parts of a computer?

[OR]

b) Explain the Classification of Computers?

12. a) Explain about ROM?

[OR]

b) Explain about Keyboard in detail.

13. a) Write about compilers and Interpreters.

[OR]

b) Write short note on Web browsers.

14. a) Explain any five tags in detail?

[OR]

b) Explain about List?

15. a) Explain Table creation in HTML

[OR]

b) Explain Frameset in detail.

### SECTION - C

[ 3 X 10 = 30 ]

Answer Any THREE Questions.

16. Write the importance of computer?

17. Explain the classification of secondary storage devices in detail.

18. Explain about the types of networks and topology in detail.

19. Write a sample program to explain the structure of HTML.

20. Create a Sample Form Design.

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**END SEMESTER EXAMINATION - NOVEMBER 2018**

Class : I B.B.A. / B.Com

Course Code: 17UITN11

Course Title : Introduction to

**Information Technology**

Date : 14.11.2018

Time : 10.00 a.m to 1.00 p.m

Max Marks : 75

**SECTION - A**

**Answer ALL the Questions**

**Choose the Best Answer**

**[10 X 1 = 10]**

1. A group of 8 bits is called as \_\_\_\_\_.  
[a] Bite [b] Byte  
[c] Outbits [d] GB
2. The First personal computer was introduced by \_\_\_\_\_.  
[a] IBM [b] Commodore  
[c] Apple [d] Mark I
3. \_\_\_\_\_ consists of interconnected electronic devices that control everything the computer does.  
[a] Hardware [b] Software  
[c] Data [d] Users
4. Each instruction is the instruction set expressed in \_\_\_\_\_.  
[a] Processor [b] Microcode  
[c] Microprocessor [d] Microcontroller

5. Magnetic tape is an example of \_\_\_\_\_ media.

[a] Control

[b] Sequential

[c] Processor

[d] Monitor

6. \_\_\_\_\_ is the next generation of OMR.

[a] IBM

[b] OCR

[c] M10

[d] ICR

7. A \_\_\_\_\_ is an organized list of instructions that when executed.

[a] Program

[b] Memory

[c] Register

[d] Clock signal

8. \_\_\_\_\_ is a table of values arranged in rows and columns.

[a] MS-Word

[b] Hardware

[c] MS-Excel

[d] MS-Messenger

9. A \_\_\_\_\_ is a group of two or more computer systems linked together.

[a] OS

[b] Hardware

[c] Software

[d] Network

10. In which Network, the ends are not connected.

[a] Bus

[b] Star

[c] Ring

[d] Tree

### SECTION - B

Answer ALL the Questions

[ 5 X 7 = 35 ]

11. a) What are the importance of Computer?

[OR]

b) Explain the Classification of Computer?

12. a) Explain the Magnetic Tape and how does it work?

[OR]

b) Explain the Scanner and its Types?

13. a) Explain the classification of Monitors based on color?

[OR]

b) Describe about the Card Reader?

14. a) Explain Classification of Software.

[OR]

b) Write a short note on

i) Dot matrix printer

ii) Ink jet printer

15. a) Describe File Transfer Protocol (FTP).

[OR]

b) Explain the Web browsers.

### SECTION - C

[ 3 X 10 = 30 ]

Answer Any THREE Questions

16. Explain the Characteristics of Computer.

17. Explain in detail the Central Processing Unit.

18. Describe about the Input device of key board and explain the different types of keys.

19. Explain the Characteristics of a Monitor.

20. Explain the Different types of Networks.

12. a) Explain the Magnetic Tape and how does it work?

[OR]

b) Explain the Scanner and its Types?

5. Magnetic tape is an example of \_\_\_\_\_ media.  
[a] Control  
[c] Processor  
[b] Sequential  
[d] Monitor  
6. \_\_\_\_\_ is the next generation of OMR.

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**END SEMESTER EXAMINATION - NOVEMBER 2018**

Class: B.Sc.(IT)

Course Code: 17UITC21

Course Title : Programming in C

Date: 16.11.2018

Time: 2.00 p.m. to 5.00 p.m.

Max Marks : 75

**SECTION - A**

**[10 X 1 = 10]**

**Answer ALL the Questions.**

**Choose the Best Answer.**

- \_\_\_\_\_ constant is sequence of characters enclosed in double quotes.  
[a] Integer [b] Double  
[c] String [d] Long
- \_\_\_\_\_ type has no values.  
[a] main [b] if then  
[c] for [d] void
- The specification \_\_\_\_\_ means that read a single character.  
[a] %d [b] %s  
[c] %f [d] %c
- The \_\_\_\_\_ will exit only a single loop.  
[a] break [b] continue  
[c] next [d] goto
- The subscript of an array should end with \_\_\_\_\_.  
[a] char [b] integer  
[c] long int [d] string

6. Every element of an array should end with \_\_\_\_\_.

- [a] \n [b] \d  
[c] \t [d] \o

7. A variable declared inside a function is called \_\_\_\_\_.

- [a] global [b] local  
[c] static [d] dynamic

8. \_\_\_\_\_ is a collection of different data types.

- [a] union [b] array  
[c] struct [d] pointers

9. The \_\_\_\_\_ function is used to write data to randomly accessed file.

- [a] ftell [b] rewind  
[c] sizeof [d] seek

10. \_\_\_\_\_ variables can be assigned the address of another variable.

- [a] pointer [b] array  
[c] struct [d] union

**SECTION - B**  
**Answer ALL the Questions.**

[ 5 X 7 = 35 ]

11. a) Write the basic structure of C Program with example.

[OR]

b) Explain the types of Constants with example.

12. a) Discuss about formatted I/O Statements.

[OR]

b) Explain while and do - while statements with example.

13. a) How will you declare and initialize arrays? Give example.

[OR]

b) How will you read and write strings? Give example.

14. a) What is recursion? Explain with example program.

[OR]

b) Discuss about Structure and Union with example.

15. a) Write about Pointers with example.

[OR]

b) How will you open and close a file? Explain.

**SECTION - C** [ 3 X 10 = 30 ]  
**Answer Any THREE Questions**

16. Explain the various data types available in C.

17. Discuss the various forms of IF Statement with suitable example.

18. Write a C Program to add two matrices.

19. Discuss about the category of functions.

20. Explain the various I/O operations on files with examples.

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## END SEMSTER EXAMINATION - NOVEMBER 2018

Class : B.B.A

Date : 14.11.2018

Course Code : 17UITN21

Time : 2.00 p.m to 5.00 p.m.

Course Title : **Internet and Its Applications** Max Marks : 75

### SECTION – A

[10 X 1 = 10 ]

Answer ALL the Questions

Choose the Best Answer

1. Internet was originally a project of \_\_\_\_\_.  
[a] NSF [b] NSA  
[c] ARPA [d] ISO
2. Which device is necessary to operate the internet?  
[a] CD-ROM [b] ISP  
[c] MODEM [d] All the above
3. Which of the following is not a web browser?  
[a] Internet Explorer [b] Mozilla Firefox  
[c] Opera [d] MS-Outlook
4. Which is not related to Internet?  
[a] ISP [b] UPS  
[c] Modem [d] DNS
5. FTP is used to \_\_\_\_\_.  
[a] browsing [b] transfer files  
[c] chatting [d] All the above

6. News group is created by sending a special \_\_\_\_\_.

[a] information

[b] request

[c] message

[d] messenger

7. \_\_\_\_\_ is a block of text append to the end of the e-mail.

[a] file

[b] signature

[c] photos

[d] text

8. \_\_\_\_\_ is used to create web pages.

[a] URL

[b] DNS

[c] FTP

[d] HTML

9. \_\_\_\_\_ is an example of internet telephony communication medium.

[a] Fax

[b] Mail

[c] File Transfer

[d] All the above

10. \_\_\_\_\_ is a telecommunication in the form of both audio and video.

[a] Telephony

[b] Video Conference

[c] Conference Call

[d] Discussion

### SECTION – B

[ 5 X 7 = 35 ]

[Answer ALL the Questions]

11. a) How does internet work? Explain.

[OR]

b) Discuss about Cellular Broad Band.

12. a) How the Web works? Explain.

[OR]

b) Discuss about Information Sources.

13. a) Discuss about Domain Names.

[OR]

b) Discuss i) DNS ii) URL

14. a) How E-mail works? Explain.

[OR]

b) Write the disadvantages of E-mail.

15. a) Discuss about classification of mailing lists.

[OR]

b) Discuss about IRC.

### SECTION – C

[ 3 X 10 = 30 ]

[Answer Any THREE Questions]

16. Write the History of Internet.

17. Explain the types of Browsers.

18: Discuss i) HTTP (3)

ii) FTP (3)

iii) TCP/IP (4)

19. Explain about Mailing Basics.

20. Write the advantages and disadvantages of E-Publishing.

18. What is meant by Binary Tree Traversal? Write algorithm for Binary Tree Traversal.

19. Briefly explain about Quick Sort with example data. Also write algorithm and C program for Quick Sort.

20. Explain in detail with proper example and Algorithm

a. Depth First search

b. Breadth first Search

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**END SEMESTER EXAMINATION - NOVEMBER 2018**

Class: II B.Sc. (IT)

Course Code: 17UITC32

Course Title : Data Structures

Date: 17.11.2018

Time: 10.00 a.m to 1.00 p.m

Max Marks : 75

**SECTION – A**

**[10 X 1 = 10 ]**

**Answer ALL the Questions.**

**Choose the Best Answer.**

- \_\_\_\_\_ allocation memory refers to the allocation of memory during compilation.  
[a] Dynamic [b] Static  
[c] Default [d] Free
- In C, \_\_\_\_\_ function is used to release memory.  
[a] new [b] malloc  
[c] free [d] getNode(Node)
- Expansion of LIFO \_\_\_\_\_.  
[a] Last In Free Out [b] Last In First Out  
[c] Last In First On [d] Live In Five Out
- \_\_\_\_\_ is a queue which allows insertions and deletions at both ends.  
[a] Stack [b] Queue  
[c] Linked List [d] Dequeue

5. Node at top hierarchy of the tree is called \_\_\_\_\_.
- [a] Children [b] Parent  
[c] Root [d] Subtree
6. Which one is nonlinear data structure?
- [a] Tree [b] Linked list  
[c] Stack [d] Queue
7. \_\_\_\_\_ involves rearranging records in the order of their values.
- [a] Searching [b] Sorting  
[c] Indexing [d] Sequence
8. The best case insertion sorting time is \_\_\_\_\_.
- [a]  $O(n)$  [b]  $n$   
[c]  $O(\log n)$  [d]  $\log n$
9. \_\_\_\_\_ of a vertex is the number of edges that leave the vertex.
- [a] Degree [b] Tree  
[c] Outdegree [d] Indegree
10. BFS stands for \_\_\_\_\_.
- [a] Breadth For Search [b] Break First Search  
[c] Breadth First Search [d] Breadth For Search

**SECTION - B** [5 X 7 = 35]  
**Answer ALL the Questions.**

11. a) Write the 4 basic steps involved in problem solving. Also Explain Problem Solving Strategies in data Structure.
- [OR]
- b) Write a C program to insert an element in a Doubly Linked List after node M.

12. a) What is meant by Circular Queue? Write Program for insert and delete with Illustration.

[OR]

- b) Write a short note on Infix, Prefix, and Postfix forms of expressions.

13. a) Explain the types of Binary Tree.

[OR]

- b) Define Binary Search Tree. Write the step involved in inserting the following elements (in given order) into a Binary Search Tree.

80, 50, 120, 72, 54, 140, 110.

14. a) Define the following terms. Sorting, Internal Sorting, External Sorting, Stable Sorting, Unstable Sorting, Inplace Sorting, Indirect Sorting.

[OR]

- b) Define Shell sort. Write a C program for Shell sort.

15. a) Define Graph. Also define and draw example graphs for the followings:

- i. Directed graph
- ii. Symmetric digraph
- iii. Strongly connected graph

[OR]

- b) What are the methods are available to represent a graph? Explain with example.

**Section - C** [3 X 10 = 30]

**Answer Any THREE Questions.**

16. Briefly explain Single Linked List and its Basic operations.
17. Write brief note about Array implementation of Stack.

18. Write about the following:

i) Exclusive-OR gate

ii) Demultiplexer.

19. Discuss about computer instructions.

20. Explain about addressing modes.

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**G .T.N. ARTS COLLEGE ( AUTONOMOUS )**

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**END SEMESTER EXAMINATION - NOVEMBER 2018**

Class : II B.Sc. (IT)

Date : 26.11.2018

Course Code: 17UITA31

Time : 10.00 a.m to 1.00 p.m

Course Title : Digital Principles &

Max Marks : 75

**Computer Organization**

**SECTION – A**

**[10 X 1 = 10 ]**

**Answer ALL the Questions.**

**Choose the Best Answer.**

1. The Excess-3 equivalent of BCD code 0101 is \_\_\_\_\_  
[a] 0000 [b] 0101  
[c] 1000 [d] 0001
2. Which of the following is basic gate?  
[a] XOR [b] AND  
[c] NOR [d] NAND
3. The 2's complement of  $(101100)_2$  is \_\_\_\_\_  
[a] 010101 [b] 010100  
[c] 101011 [d] 010011
4. The fundamental product produces an output 0 for the corresponding input condition is \_\_\_\_\_  
[a] sum of product [b] sum of priority  
[c] product of sum priority [d] product of sum

5. \_\_\_\_\_ means one to many.

- [a] demultiplexer
- [b] multiplexer
- [c] decoder
- [d] encoder

6. How many outputs are on a BCD decoder?

- [a] 4
- [b] 16
- [c] 8
- [d] 10

7. \_\_\_\_\_ counters are sometimes called asynchronous counters.

- [a] ring
- [b] parallel
- [c] ripple
- [d] serial

8. \_\_\_\_\_ subroutine is a subroutine that called itself.

- [a] Direct
- [b] Indirect
- [c] Void
- [d] Recursive

9. Stack is a \_\_\_\_\_ structure.

- [a] FIFO
- [b] LIFO
- [c] LILO
- [d] HIPO

10. The storage element for a static RAM is the \_\_\_\_\_.

- [a] diode
- [b] flip-flop
- [c] resistor
- [d] capacitor

**SECTION - B**  
**Answer ALL the Questions.**

[ 5 X 7 = 35 ]

11. a) Discuss about basic gates.

[OR]

b) Discuss about i) NAND ii) NOR.

12. a) Show the logic circuit for  $Y = A\bar{B} + AB$ . Next simplify this Boolean equation and draw the corresponding logic circuit.

[OR]

b) Write Boolean laws in detail.

13. a) Discuss about Multiplexer.

[OR]

b) Discuss about Seven Segment Decoder.

14. a) Discuss about Stored Program Organization.

[OR]

b) Explain about Control Memory Organization.

15. a) Discuss about Instruction Formats.

[OR]

b) Explain about STACK Organization.

**SECTION - C** [ 3 X 10 = 30 ]  
**Answer Any THREE Questions.**

16. Convert the following:

- i)  $(0.85)_{10} = (?)_2$
- ii)  $(23.6)_{10} = (?)_2$
- iii)  $(175)_{10} = (?)_8$
- iv)  $(C5E2)_{16} = (?)_2$
- v)  $(1110100101110100)_2 = (?)_{16}$

17. What is the simplified Boolean equation for the following Karnaugh Map

	$\bar{C}\bar{D}$	$\bar{C}D$	$CD$	$C\bar{D}$
$\bar{A}\bar{B}$	0	0	0	0
$\bar{A}B$	0	0	1	0
$AB$	1	1	1	1
$A\bar{B}$	0	1	1	1

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**END SEMESTER EXAMINATION - APRIL 2019**

Programme : **B.Sc. Information Technology** Date : **02.05.2019**  
Course Code: **17UITC11** Time : **2.00 p.m. to 5.00 p.m.**  
Course Title : **Fundamentals of I.T. and HTML** Max Marks : **75**

**Section - A**

**[10 X 1 = 10]**

**Answer ALL the Questions.  
Choose the Correct Answer.**

- \_\_\_\_\_ part is called the brain of the computer.  
[a] Hard disk [b] CPU  
[c] ALU [d] Memory
- Cray Y-MP/C90 is a \_\_\_\_\_.  
[a] Microcomputer [b] Minicomputer  
[c] Mainframe [d] Supercomputer
- Each instruction in the instruction set is expressed in \_\_\_\_\_.  
[a] micro code [b] mini code  
[c] BCD Code [d] pin code
- The input device used mostly for computer games is the \_\_\_\_\_.  
[a] Light pen [b] Keyboard  
[c] Scanner [d] Joystick

[a] Cathode Ray Tube

[b] Carbon Race Tube

[c] Carbon Ray Tube

[d] Cathode Race Tube

6. A \_\_\_\_\_ is a piece of software that acts as an interface between the user and the inner-workings of the internet specifically the World Wide Web.

[a] Server

[b] Browser

[c] Client

[d] Scanner

7. Which tag is used for largest heading size?

[a] <h1>

[b] <h2>

[c] <h3>

[d] <h4>

8. We can type the text without any change using the \_\_\_\_\_ tag pair.

[a] <p> </p>

[b] <pre> </pre>

[c] <c> </c>

[d] <nc> </nc>

9. The data in any cell of the table are always aligned \_\_\_\_\_ by default.

[a] Right

[b] Center

[c] Left

[d] Top

10. Which attribute is used to inform the server the way to handle the encryption process?

[a] Action

[b] Method

[c] Encrypt

[d] Encypte

### Section - B

Answer ALL the Questions.

[ 5 X 7 = 35 ]

11. a) Write the characteristics and uses of Computers.

[OR]

b) Write a note on Classification of Computers.

12. a) Compare Random access memory with Read only memory.

[OR]

b) Describe on digital camera and video camera.

13. a) Explain about classification of software.

[OR]

b) Write about web pages and web browsers.

14. a) How to link web pages using anchor tag and hyper links in HTML?

Give examples.

[OR]

b) Write about ordered list and nested list in HTML by examples.

15. a) How to change the width of the table and cells using cells spanning in HTML? Give example program.

[OR]

b) Design a web page using frame and framesets by example.

### Section - C

[ 3 X 10 = 30 ]

Answer any THREE Questions.

16. Describe about CPU, Memory and registers of a computer system

17. Discuss on various types of secondary storage devices.

18. a) Discuss about compilers and interpreters.

b) Write a note on different network topologies.

19. Describe about designing body section of HTML with examples.

20. Discuss on form design with drop down list by example



5. A \_\_\_\_\_ function is used to compare the strings.

- [a] continue [b] break  
[c] strcmp() [d] variable declaration

6. An array created using \_\_\_\_\_ function at run time is referred as dynamic array:

- [a] malloc [b] calloc  
[c] realloc [d] alloc

7. A variable declared inside a function is called \_\_\_\_\_.

- [a] global [b] local  
[c] static [d] string

8. \_\_\_\_\_ is a collection of different data type.

- [a] union [b] pointer  
[c] array [d] struct

9. The \_\_\_\_\_ function is used to write data to randomly accessed file.

- [a] ftell [b] rewind  
[c] sizeof [d] seek

10. A pointer variable can be initialized with \_\_\_\_\_ value.

- [a] integer [b] null  
[c] char [d] string

**SECTION – B**  
**Answer ALL the Questions.**

[5 X 7 = 35]

11. a) Explain the basic structure of a C program.

[OR]

b) Explain the mathematical functions in C with examples.

12. a) Explain about formatted input and output in C

[OR]

b) Write a short note on goto statement with example.

13. a) Write about string handling functions with example.

[OR]

b) What is one dimensional array with example?

14. a) Differentiate between structure and unions.

[OR]

b) Explain about passing string to functions with example.

15. a) What is chain of pointers.

[OR]

b) List out the advantages of using pointers in C.

**SECTION – C** [3 X 10 = 30]  
**Answer any THREE Questions.**

16. Explain the operators in detail?

17. Write a program to calculate student grade using multiple else if statement.

18. Write a program to sort a single dimensional array.

19. Write a program to calculate employee pay bill using structures.

20. Write a program to swap two numbers using pointers.



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**END SEMESTER EXAMINATION - APRIL 2019**

**Programme : B.Sc. Information Technology**

**Date : 03.05.2019**

**Course Code: 17UITC41**

**Time: 10.90 a.m. to 1.00 p.m.**

**Course Title : Relational Database**

**Max Marks :75**

**Management Concepts**

**SECTION – A**

**[10 X 1 = 10 ]**

**Answer ALL the Questions.**

**Choose the Best Answer.**

1. A \_\_\_\_\_ is used to define the external and conceptual schema.  
[a] SQL [b] DDL  
[c] DML [d] TCL
2. An entity is described using a set of \_\_\_\_\_.  
[a] Physical [b] Logical  
[c] Entities [d] Attributes
3. A \_\_\_\_\_ is a table whose rows are not explicitly stored in the database.  
[a] Insert [b] Alter  
[c] Drop [d] View
4. A \_\_\_\_\_ is a variable that takes on tuples of a particular relation schema as values.  
[a] Tuple Variable [b] Set variable  
[c] Schema Variable [d] Domain Variable

5. An active database has a collection of \_\_\_\_\_.
- [a] Drop [b] Index  
[c] Triggers [d] View
6. A new domain using the \_\_\_\_\_ statement.
- [a] Create Domain [b] Alter Domain  
[c] Insert Domain [d] Drop Domain
7. The set of all FDs implied by a given set of F of FDs is called the \_\_\_\_\_.
- [a] Union [b] Axiom  
[c] Closure of F [d] Infer
8. In which normal form, every determinant should be a candidate key?
- [a] BCNF [b] 3NF  
[c] 5NF [d] 2NF
9. Which one of the properties in ACID?
- [a] BCNF [b] Consistency  
[c] Reliability [d] Constantly
10. The \_\_\_\_\_ command right to insert rows with values in the named column of the table named as object.
- [a] insert [b] drop  
[c] update [d] delete

**SECTION – B**  
**Answer ALL the Questions.**

[5 X 7 = 35]

11. a) What is the importance of a database management system?

[OR]

- b) What are the steps in designing a database?

12. a) Describe the set operations of relational algebra.

[OR]

- b) Briefly explain the domain relational calculus.

13. a) What are nested queries? What is correlation in nested queries?

[OR]

- b) What are normal forms and what is their purpose.

14. a) Briefly notes on procedure in PL/SQL.

[OR]

- b) How to handle the error in PL/SQL.

15. a) List out the ACID properties of transaction management.

[OR]

- b) What is discretionary access control and how is it supported in SQL.

**SECTION – C** [3 X 10 = 30]  
**Answer any THREE Questions.**

16. How does conception design fit within ER-Model? With an example.
17. Explain the Domain Relational Calculus.
18. How to design the database using scheme refinements? With an example.
19. What is cursor? How to manage in different ways?
20. Describe about mandatory access control.

18. Brief notes on Deadlock Detection in a system.
19. Illustrate any two Page Replacement Strategies in Virtual Memory Management.
20. Describe any two File Allocation Schemes with a neat diagram.

Reg. No:

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Programme : B.Sc. Information Technology

Date : 06.05.2019

Course Code: 17UITC42

Time: 10.00 a.m. to 1.00 p.m.

Course Title : Operating System

Max Marks : 75

Concepts

#### SECTION - A

[10 X 1 = 10]

Answer ALL the Questions.

Choose the Correct Answer.

1. Assembly languages are developed to improve \_\_\_\_\_ of the programming process.  
[a] Accuracy [b] Speed  
[c] Memory [d] Ease
2. The act of assigning a processor to the first process on the ready list is called \_\_\_\_\_.  
[a] Dispatching [b] state transition  
[c] Process table [d] execution
3. Mechanism that a system can provide to implement mutual exclusion is \_\_\_\_\_.  
[a] deadlock [b] critical section  
[c] semaphore [d] swapping
4. The thread creating the lines to be printed is often called a \_\_\_\_\_.  
[a] spooler [b] despooler  
[c] buffer [d] process

5. Process of determining whether or not a system is deadlocked is called \_\_\_\_\_.

- [a] avoidance
- [b] detection
- [c] prevention
- [d] occurrence

6. Time a task spends in a system before it serviced.

- [a] latency
- [b] priority
- [c] quantum
- [d] scalability

7. \_\_\_\_\_ replacement strategy replaces the page that has been in the system the longest.

- [a] RAND
- [b] FIFO
- [c] LRU
- [d] LFU

8. \_\_\_\_\_ register containing the lowest memory address a process may reference.

- [a] general
- [b] boundary
- [c] memory
- [d] base

9. \_\_\_\_\_ improves disk access and fault tolerant by requesting multiple disks at once.

- [a] CPU
- [b] main memory
- [c] RAID
- [d] virtual memory

10. Path beginning at the root directory is called \_\_\_\_\_.

- [a] checkpoint
- [b] direct path
- [c] circular path
- [d] absolute path

**SECTION – B**  
**Answer ALL the Questions.**

(5 X 7 = 35)

11. a) Explain the core components of operating system.

**[OR]**

b) Write short notes on Process Control Block (PCB).

12. a) What is Mutual Exclusion? Explain it with an example.

**[OR]**

b) Discuss about semaphores.

13. a) Explain the four necessary conditions for deadlock.

**[OR]**

b) Illustrate Shortest-Process-First (SPF) Scheduling Algorithm.

14. a) What are the memory management strategies designed to obtain the best possible use of main memory?

**[OR]**

b) Explain the various characteristics of variable-partition multiprogramming.

15. a) Discuss on SCAN Disk Scheduling.

**[OR]**

b) Discuss about file organization.

**SECTION – C**

**[3 X 10 = 30]**

**Answer Any THREE Questions.**

16. Describe the various architectures of Operating System.

17. Explain about hardware solutions to the Mutual Exclusion problem in detail.



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**END SEMESTER EXAMINATION - APRIL 2019**

Programme : **B.Sc. Information Technology** Date : **03.05.2019**

Course Code : **17UITC31**

Time : **2.00 p.m. to 5.00 p.m.**

Course Title : **Object Oriented Programming**

Max Marks : **75**

**Using C++**

**Section – A**

**[10 X 1 = 10 ]**

**Answer ALL the Questions.**

**Choose the Correct Answer.**

- \_\_\_\_\_ is used for grouping together elements with dissimilar type.  
[a] Structure [b] Arrays  
[c] Function [d] Operator
- In C++ the \_\_\_\_\_ returns a value of INT to the operating system.  
[a] structure [b] main( )  
[c] union [d] class
- The \_\_\_\_\_ member variables must be defined outside the class.  
[a] dynamic [b] public  
[c] private [d] static
- \_\_\_\_\_ destroys the objects when they are no longer required.  
[a] Destructor [b] Constructor  
[c] Const [d] Delete

5. The \_\_\_\_\_ class inherits some or all the properties of the base class.

[a] Derived

[b] function

[c] nesting

[d] multipath

6. Which operator cannot overload in C++ operators \_\_\_\_\_.

[a] ? :

[b] ->

[c] +

[d] -

7. \_\_\_\_\_ means one name having multiple forms.

[a] Inheritance

[b] data abstraction

[c] polymorphism

[d] data hiding

8. \_\_\_\_\_ represents the input stream connected to the standard input device.

[a] cin

[b] cout

[c] write

[d] read ( )

9. We can use \_\_\_\_\_ parameters in both class templates and function template.

[a] multiple

[b] single

[c] double

[d] triple

10. \_\_\_\_\_ moves get pointer input to a specified location.

[a] Tellg ( )

[b] seekg ( )

[c] tellp ( )

[d] seekp ( )

**Section – B**  
**Answer ALL the Questions.**

**[ 5 X 7 = 35 ]**

11. a) Write a benefit and application of OOPS.

**[OR]**

b) Explain the identifiers and constants?

12. a) Explain parameterized constructor.

**[OR]**

b) Write about destructors.

13. a) Write about over loading binary operators in C++?

**[OR]**

b) Describe about Hierarchical inheritance.

14. a) Describe pointers to Function in C++.

**[OR]**

b) Write about stream classes.

15. a) Write about opening and closing files.

**[OR]**

b) Write program on overloading of Template Functions in C++.

**Section – C** **[ 3 X 10 = 30 ]**  
**Answer any THREE Questions.**

16. Explain the basic concepts of object oriented programming?

17. Explain about Constructors with default arguments with example.

18. Explain multilevel inheritance with suitable example.

19. Explain about virtual functions in C++ with example.

20. Explain sequential file input and output operations in C++ with examples.



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**END SEMESTER EXAMINATION - APRIL 2019**

Programme : **B.Sc. Information Technology** Date : **06.05.2019**  
Course Code: **17UITC32** Time : **2.00 p.m. to 5.00 p.m.**  
Course Title : **Data Structures** Max Marks : **75**

**Section – A**

**[10 X 1 = 10 ]**

**Answer ALL the Questions.**

**Choose the Best Answer.**

1. \_\_\_\_\_ strategy finds the optimal solutions by keeping the best solution found up to that point.  
 [a] Branch and Bound                      [b] Branch  
 [c] Bound                                      [d] Backtracking
2. Each node contains the address of the adjacent node and the last node will have the address of the first node is called \_\_\_\_\_.  
 [a] Single Linked List                      [b] Doubly Linked List  
 [c] Circular Linked List                      [d] Multiple Linked List
3. An expression is said to be \_\_\_\_\_, if the operator is in between the operands.  
 [a] Postfix                      [b] Infix                      [c] Prefix                      [d] Suffix
4. \_\_\_\_\_ is a data structure which allows insertions and deletions at both ends.  
 [a] Stack                                      [b] Queue  
 [c] Linked List                                      [d] Dequeue

5. Nodes that do not have any children is called \_\_\_\_\_.

[a] Leaf [b] Parent

[c] Root [d] Subtree

6. A \_\_\_\_\_ tree has only one node at any level.

[a] Skew [b] Complete

[c] Strictly [d] Binary

7. \_\_\_\_\_ sort is a simple sort which sorts the elements digit by digit.

[a] Insertion [b] Merge

[c] Quick [d] Radix

8. The best case insertion sorting time is \_\_\_\_\_.

[a]  $O(n)$  [b]  $n$

[c]  $O(\log n)$  [d]  $\log n$

9. \_\_\_\_\_ of a vertex in a digraph is the number of edges that are incident on it.

[a] Degree [b] Tree

[c] Outdegree [d] Indegree

10. A \_\_\_\_\_ graph is an undirected graph in which the vertices can be partitioned into two sets.

[a] Asymmetric digraph [b] Symmetric digraph

[c] Bipartite [d] Bipartite graph

### Section – B

[ 5 X 7 = 35 ]

Answer ALL the Questions.

11. a) Explain different problem solving strategies in algorithm analysis.

[OR]

b) Write an algorithm for inserting and printing elements in circularly linked list.

12. a) Explain Tower of Hanoi problem with algorithm and diagrams.

[OR]

b) Write an algorithm to insert and delete an element into the queue.

13. a) Explain different types of binary trees and its representation with examples.

[OR]

b) Explain searching an element in Binary search tree with algorithm & example.

14. a) Describe insertion sort with example and complexity.

[OR]

b) Write a C program for selection sort with example.

15. a) Explain different types of graphs and representation of graph with example.

[OR]

b) Write an algorithm for breadth first search with example.

### Section – C

[ 3 X 10 = 30 ]

Answer any THREE Questions.

16. Write an algorithm and C program to insert and delete a node in doubly linked list

17. Write an algorithm and C program to evaluate a postfix expression using stack.

18. Describe about Binary tree traversals with algorithm and example.

19. Discuss on quick sort with C program and example.

20. Describe about Prim's minimum spanning tree algorithm by examples