Code: 15O-7201 **COMP**

THIAGARAJAR POLYTECHNIC COLLEGE, SALEM

(Autonomous) Reg. No.

October/November 2019 Examinations

DIPLOMA IN COMPUTER ENGINEERING

Basics of Electrical and Electronics Engineering

Year/Sem: II / III (ODD-II) Max. Marks : 75 Time : 3 hr.

PART-A **(5 x 2 = 10 Marks)**

Note: (i) Answer any FIVE questions out of which question No.8 is compulsory.
(ii) All questions carry equal marks.

1 Define: a) Cycle and b) Frequency

2 Name the different types of losses in a transformer.

3 Draw the symbol of LED and LDR

4 Define a) Ripple factor and b) PIV

5 Define Positive and Negative Logic.

6 What are edge triggered flip flop?

7 What is a shift register?

8 State Duality Theorem.

PART-B **(5 x 3 = 15 Marks)**

Note: (i) Answer any FIVE questions out of which question No. 16 is compulsory.
(ii) All questions carry equal marks.

9 Write down the maintenance steps of UPS

10 What are the applications of auto transformer?

11 Write down any six factors to be considered for selecting a motor for a particular operation.

12 Explain Avalanche and Zener breakdown.

13 Explain the principle of NPN transistor.

14 Write short notes on BCD Code.

15 Simplify the logical expression using Karnaugh map.

$$Y = \overline{A}\,\overline{B} + \overline{A}B + AB$$

16 Write down the applications of Shift register.

PART-C **(5 x 10 = 50 Marks)**

Note: (i) Answer all the questions choosing either sub-division (A) or sub-division (B) of each question.
(ii) All questions carry equal marks.

17 A Explain the construction of Lead acid battery. 10

(OR)

B With a diagram, explain the operation of Off line UPS 10

18 A Explain the construction and working principle of Auto transformer. 10

(OR)

B Explain the working principle of Stepper motor. 10

19 A With necessary diagram, explain the working of Bridge rectifier. 10

(OR)

B Draw the circuit of CE configuration and explain the operation. 10

20 A Explain the operation of Full subtractor with a diagram and truth table. 10

(OR)

B Explain 1 to 8 Demultiplexer with the diagram 10

21 A Explain the operation of JKMS flip flop with a diagram and truth table. 10

(OR)

B With a block diagram, waveform and truth table, explain the operation of Decade counter. 10

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Code: 15O-7202 COMP

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DIPLOMA IN COMPUTER ENGINEERING

C Programming and Introduction to Data Structures

Year/Sem: II / III (ODD-II) Max. Marks : 75 Time : 3 hr.

PART-A **(5 x 2 = 10 Marks)**

Note: (i) Answer any FIVE questions out of which question No.8 is compulsory.
(ii) All questions carry equal marks.

1 What is flowchart?
2 Write the C program to check whether a number is positive or negative.
3 List any two mathematical functions and mention its use.
4 What is the use of malloc( ) function? Write its syntax.
5 Define data structure.
6 What is dequeue?
7 Define height of a tree.
8 What is the use of return statement?

PART-B **(5 x 3 = 15 Marks)**

Note: (i) Answer any FIVE questions out of which question No. 16 is compulsory.
(ii) All questions carry equal marks.

9 Write a C program to find the area of circle.
10 Write the syntax and draw the flow diagram for 'for loop'.
11 Compare structure and union.
12 List the advantages of pointers.
13 Write notes on circular linked list.
14 Define (i) Weighted graph (ii) Indegree
15 What is sequential search? Give an example.
16 Define array. Write the syntax for the declaration of 2-D array with example.

PART-C **(5 x 10 = 50 Marks)**

Note: (i) Answer all the questions choosing either sub-division (A) or sub-division (B) of each question. (ii) All questions carry equal marks.

17 A (i) Explain the structure of C program. 5
(ii) Explain the formatted input function. 5

(OR)

B Explain any five types of operators in C with example. 10

18 A (i) Write a C program to read any day number in integer and display day name in word using switch...case statement. 5
(ii) Explain strlen( ), strcat( ) and strcpy( ) functions with example. 5

(OR)

B Write a C program for matrix multiplication. 10

19 A Explain call by value and call by reference with example. 10

(OR)

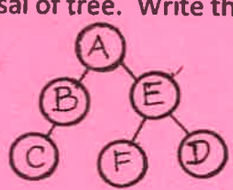
B (i) Explain how the address of a variable is accessed? 5
(ii) Explain how realloc( ) is used to alter the size of the memory? 5

20 A (i) Explain inserting a new node at the middle of singly linked list. 5
(ii) Define recursion. Write the recursive algorithm for factorial. 5

(OR)

B (i) Describe the algorithm to evaluate the postfix expression with example. 5
(ii) Write notes on priority queue. 5

21 A (i) Write the algorithm for Preorder traversal of tree. Write the Preorder traversal result of the following tree. 5



(ii) Explain adjacency matrix representation of graph with example. 5

(OR)

B (i) Explain the algorithm for bubble sort with example. 5
(ii) Write the algorithm for binary search. 5

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Code: 150-7203 COMP

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DIPLOMA IN COMPUTER ENGINEERING

Operating Systems

Year/Sem: II / III (ODD-II) Max. Marks : 75 Time : 3 hr.

PART-A **(5 x 2 = 10 Marks)**

Note: (i) Answer any FIVE questions out of which question No.8 is compulsory.
(ii) All questions carry equal marks.

1 List any 4 operating system services.
2 Define process control block.
3 What is mutual exclusion?
4 What is physical address?
5 List the different page replacement algorithms.
6 What is authentication?
7 List any 4 popular flavors of linux.
8 Define booting.

PART-B **(5 x 3 = 15 Marks)**

Note: (i) Answer any FIVE questions out of which question No. 16 is compulsory.
(ii) All questions carry equal marks.

9 Write a note on desktop OS.
10 Explain about command interpreter.
11 Explain the types of threads.
12 What is deadlock recovery? Explain.
13 Explain about demand paging.
14 Explain about disk formatting.
15 What is unmounting? Explain.
16 Explain about RAID Level 1.

PART-C **(5 x 10 = 50 Marks)**

Note: (i) Answer all the questions choosing either sub-division (A) or sub-division (B) of each question.
(ii) All questions carry equal marks.

17 A Explain process management component. 10

(OR)

B (i) Explain any two types of system call. 5
(ii) Explain about monolithic OS. 5

18 A Explain any two types of pre-emptive scheduling. 10

(OR)

B (i) Explain process state transitions. 5
(ii) What is message passing? Explain 5

19 A (i) Discuss the principle of operation of paging. 5
(ii) Explain about compaction. 5

(OR)

B Explain the hardware and control structure of virtual memory. 10

20 A Explain any two disk scheduling algorithm. 10

(OR)

B Explain in detail about disk space allocation methods. 10

21 A Explain about linux architecture with neat diagram. 10

(OR)

B Explain about linux file system. 10

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