

THIAGARAJAR POLYTECHNIC COLLEGE, SALEM

(Autonomous)

Reg. No.

October/November 2018 Examinations

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 Define expression.
- 2 Define array.
- 3 Write the syntax of function for reading a string.
- 4 What is the use of return statement?
- 5 Write any two advantages of pointers.
- 6 Define data structure.
- 7 Define circular queue.
- 8 What is binary tree?

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 any three features of C.
- 10 Write the use and syntax of switch statement.
- 11 Write a program to find transpose of a matrix.
- 12 Write the difference between structure and union.
- 13 Write the implementation of push and pop operation.
- 14 What is priority queue? Write one example.
- 15 Write short notes on adjacency matrix representation of a graph.
- 16 Write an algorithm for sequential search.

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 divisions carry equal marks.**

- | | | | |
|----|---|---|----|
| 17 | A | (i) Explain the structure of C Program. | 5 |
| | | (ii) Explain creating, compiling, linking and running a C Program. | 5 |
| | | (OR) | |
| | B | (i) Explain type casting and its types. | 5 |
| | | (ii) Write a program to find sum and average of n numbers. | 5 |
| 18 | A | Explain while structure and do ... While structure. | 10 |
| | | (OR) | |
| | B | (i) Explain any five string handling functions. | 5 |
| | | (ii) Explain two dimensional array with example | 5 |
| 19 | A | (i) Explain scope and life time of a variable. | 5 |
| | | (ii) Explain structures within structures. | 5 |
| | | (OR) | |
| | B | Explain the functions of dynamic memory allocation with example | 10 |
| 20 | A | Explain the algorithm to convert infix notation to postfix notation using stack. | 10 |
| | | (OR) | |
| | B | With example explain inserting a node at the front of the singly linked list. | 10 |
| 21 | A | With example explain Bubble sort. | 10 |
| | | (OR) | |
| | B | (i) Define binary tree traversal. Explain the algorithm for inorder traversal with example. | 5 |
| | | (ii) Explain any five basic terminologies of graph. | 5 |

October/November 2018 Examinations
DIPLOMA IN COMPUTER ENGINEERING
Basics of Electrical and Electronics Engineering

Year/Sem: II / III (Odd-II)

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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 peak factor.
- 2 Write the emf equation of transformer.
- 3 Draw the symbol of photo diode.
- 4 Convert decimal no 93 into hexadecimal form.
- 5 Define FF and its use.
- 6 What is positive logic system?
- 7 Write the application of auto transformer .
- 8 Draw the symbol of NPN transistor and mention the parts.

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 Give a short note about primary cells.
- 10 Brief about the losses in a transformer.
- 11 Write the principle of operation of LED.
- 12 Simplify $\overline{ABC} + \overline{ABC} + \overline{ABC} + ABC$
- 13 Draw the circuit for MOD 7 counter.
- 14 Explain constant voltage method of charging a battery.
- 15 Explain the operation of transistor as switch
- 16 What is race condition?

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 divisions carry equal marks.**

- | | | | |
|----|---|---|----|
| 17 | A | Define Cycle, Frequency, Amplitude, Average and RMS value. | 10 |
| | | (OR) | |
| | B | Explain the operation of both ON LINE UPS and OFF LINE UPS. | 10 |
| 18 | A | i) Write about the operation of auto transformer. | 5 |
| | | ii) Mention the applications of stepper motor. | 5 |
| | | (OR) | |
| | B | i) With the neat sketch explain pipe earthing. | 5 |
| | | ii) Explain the working principle of transformer. | 5 |
| 19 | A | With necessary diagrams explain the operation of full wave rectifier and mention its disadvantages. | 10 |
| | | (OR) | |
| | B | i) Explain the operation of PN junction Diode. | 5 |
| | | ii) Explain pi filter operation. | 5 |
| 20 | A | i) Explain the operation of decimal to BCD encoder . | 5 |
| | | ii) Explain the full adder operation. | 5 |
| | | (OR) | |
| | B | i) State and prove De-Morgan's theorem. | 5 |
| | | ii) With a logic diagram explain the operation of single bit comparator. | 5 |
| 21 | A | Explain the operation of serial in serial out shift register | 10 |
| | | (OR) | |
| | B | Explain the operation of Asynchronous 4 bit up counter | 10 |

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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 Define operating system and list any two operating systems.
- 2 Name any four components of operating systems.
- 3 Draw the structure of a PCB.
- 4 Define race condition.
- 5 What is Compaction?
- 6 Define security threats. List any 4 threats.
- 7 What is a Zombie process?
- 8 What is a i) absolute path name ii) relative path name?

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 What is a Desktop operating system? Give two examples.
- 10 What is a system call? List its types.
- 11 With a neat diagram list the five states of a process.
- 12 List the three types of schedulers.
- 13 What are the types of memory? Give examples for each memory.
- 14 Draw tree - based file structure.
- 15 Give three differences between Windows and Linux.
- 16 Process P1 needs 15 frames to be loaded into memory. Calculate how many frames have to be searched on an average to fit the 15 frames.

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 divisions carry equal marks.**

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|----|---|---|----|
| 17 | A | In detail explain about a) Mainframe and b) Multiprocessor operating systems. | 10 |
| | | (OR) | |
| | B | (i) Explain in detail about any one structure of operating system. | 5 |
| | | (ii) Define Booting and write the steps involved when a system boots. | 5 |
| 18 | A | With example explain about the Round Robin algorithm in process scheduling. | 10 |
| | | (OR) | |
| | B | (i) Explain in detail about Deadlock characteristics. | 5 |
| | | (ii) Briefly explain about Deadlock prevention. | 5 |
| 19 | A | Explain the fixed and variable sized partitions in memory management. | 10 |
| | | (OR) | |
| | B | (i) Explain the need for Virtual memory. | 5 |
| | | (ii) With example explain the LRU page replacement policy. | 5 |
| 20 | A | (i) List any five file attributes with its purpose. | 5 |
| | | (ii) In short explain about any five operations performed on a file. | 5 |
| | | (OR) | |
| | B | In detail explain the different disk scheduling algorithms. | 10 |
| 21 | A | In detail explain the architecture of Linux. | 10 |
| | | (OR) | |
| | B | (i) Write about page allocation in Linux. | 5 |
| | | (ii) Write in detail about mounting and unmounting file system. | 5 |