Total No. of Questions : 10] **SEAT No. :**

P2995 **[Total No. of Pages : 2**

[5669]-587

T.E. (Computer Engg.)

SYSTEMS PROGRAMMING AND OPERATING SYSTEM

(2015 Pattern)

Time : 2½ Hours] ***[Max. Marks : 70***

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8., Q.9 or Q.10.***
2) ***Figures to the right indicate full marks.***

Q1) a) What is the need of symbol table (ST) and literal table (LT) in two pass assembler? Explain fields of ST and LT with suitable example. **[4]**

b) Draw a neat flowchart of single pass macro processor and explain it. **[6]**

OR

Q2) a) Explain working of Binary Symbolic Subroutine (BSS) loader with example. **[6]**

b) Differentiate between compiler and interpreter? **[4]**

Q3) a) What is LEX tool? Explain working of LEX with suitable diagram and example. **[4]**

b) Explain following terms : **[6]**

i) Overlay Structures

ii) Absolute Loader

iii) Pass structure of two pass assembler

OR

Q4) a) Draw and explain flowchart of Pass-I of two pass assembler with suitable example. **[6]**

b) What is interpreter? Explain components of interpreter. **[4]**

Q5) a) What is operating system? Explain services offered by operating system. **[6]**

b) What is deadlock? Write and explain deadlock avoidance algorithm. **[5]**

P.T.O.

c) What is pre-emptive scheduling? Consider following example and apply round robin scheduling policy and calculate average turnaround(TT) time (consider Time slice=1). **[6]**

Process ID	Arrival Time	Service Time
A	0	3
B	2	6
C	4	4
D	6	5
E	8	2

OR

Q6) a) Draw and explain five state model of process states. **[6]**

b) Explain deadlock avoidance algorithm with suitable example. **[7]**

c) Compare thread and process. **[4]**

Q7) a) What is swapping? Explain it with suitable diagram or example. **[5]**

b) Consider given page sequence 2, 3, 2, 1, 5, 2, 4, 5, 3, 2, 5, 2 and the size of the frame is 3. Show the output of FIFO and Optimal, also count page faults. **[6]**

c) Explain variable size partitioning with its advantages and drawbacks. **[6]**

OR

Q8) a) What is eternal fragmentation? Explain same with suitable diagram/ example. **[5]**

b) What is virtual memory? Explain Paging with example. **[6]**

c) Explain first fit, best fit and worst fit algorithm with suitable example. **[6]**

Q9) a) What is file system? Explain file system implementation in brief. **[8]**

b) What is I/O Buffering? Explain its type in detail. **[8]**

OR

Q10)a) Explain following concepts : **[8]**

i) Disk Access Methods

ii) Directory Structure

b) Write a detail note on organization of I/O function. **[8]**

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