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

P3984 **[Total No. of Pages : 3**

[5353]-587

T.E. (Computer Engineering) (Semester - II)

SYSTEM PROGRAMMING AND OPERATING SYSTEM

(2015 Pattern)

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

Instructions to the candidates:

1) ***Solve 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) ***Neat diagrams must be drawn whenever necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Assume suitable data if necessary.***

Q1) a) Write algorithm of pass I of two pass assembler. **[5]**

b) What is Compiler? Explain any two phases of compiler with suitable diagram? **[5]**

OR

Q2) a) Explain in brief imperative statements, declaration statements and assembler directives with examples for assembly language programming. **[5]**

b) Explain pass - 1 of direct linking loader with flowchart. **[5]**

Q3) a) What are the data structures used in the design of macro processor? **[6]**

b) Explain macro expansion with relevant example. **[4]**

OR

Q4) a) Enlist the different types of errors that are handled by PASS I & PASS II of assembler. **[5]**

b) What is LEX? Explain working of LEX. **[5]**

P.T.O.

Q5) a) Explain the following types of Schedulers. **[6]**

i) Short Term

ii) Long Term

iii) Medium Term

b) Draw and explain process state transition diagram. **[6]**

c) What is process? What is thread? List down benefits of using thread. **[6]**

OR

Q6) a) What is deadlock? State and explain the conditions for deadlock. **[8]**

b) Explain process control block with suitable diagram. **[6]**

c) Explain interprocess communication. **[4]**

Q7) a) Explain the following terms in brief **[8]**

i) Virtual Memory

ii) Compaction

iii) Belady's Anomaly

iv) Thrashing

b) Explain contiguous and non-contiguous memory allocation policies with suitable example. **[8]**

OR

Q8) a) Consider page sequence 2, 3, 2, 1, 5, 2, 4, 5, 3, 2, 5, 2 and discuss working of following page replacement policies. Also count page faults. (use no. of Frames = 3) **[9]**

i) FIFO

ii) LRU

iii) Optimal

b) Differentiate internal and external fragmentation. **[4]**

c) What is thrashing? **[3]**

Q9) a) Compare the performance of given scheduling policies like FCFS. SSTF, SCAN C-SCAN considering contents of queue as

Queue : 98, 183, 37, 122, 14, 124, 65, 67. Head starts at 53. **[12]**

b) List the methods of allocating disk space. Explain any one of these methods. **[4]**

OR

Q10) a) What information is present in Directories? Explain the structure of Directory in detail. **[8]**

b) Explain file management under UNIX. **[4]**

c) Describe any four types of file organizations. **[4]**