Total No. of Questions :12]

SEAT No. :

P2950

[Total No. of Pages :3

[4958]-188
T.E. (Computer)
SYSTEMS PROGRAMMING AND OPERATING SYSTEMS
(2008 Course) (Semester - II)

Time : 3 Hours] *[Max. Marks :100*

Instructions to the candidates:

1) ***Answer any three questions from each section.***
2) ***Answers to the two sections should be written in separate books.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right indicate full marks.***
5) ***Assume suitable data, if necessary.***

SECTION-I

Q1) a) Explain language processing activities. **[8]**

b) What is Intermediate Representation. What are forms of intermediate representation. **[10]**

OR

Q2) a) Explain the Data Structures required for 2 Pass Assembler. **[10]**

b) What are assembler directives? What is the purpose of LTORG directive and EQU directive? Explain with example. **[8]**

Q3) a) What is linking? Explain the difference between static linking and dynamic linking? **[8]**

b) Explain in brief compile and go scheme. What are advantages and disadvantages of it. **[8]**

OR

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Q4) a) Explain in brief a direct linking loader. **[8]**

b) Explain following terms. **[8]**

i) Subroutine Linkage

ii) Relocation

iii) Callback function

iv) Overlay

Q5) a) What are the functions of operating systems? **[4]**

b) Explain in detail concept of batch operating system and time sharing system. **[8]**

c) Explain the structure of operating system. **[4]**

OR

Q6) a) Draw and explain the process state transition diagram. **[6]**

b) Explain following system calls **[4]**

i) wait

ii) exec

c) Explain difference between preemptive and non preemptive algorithm with example. **[6]**

SECTION-II

Q7) a) What is critical section? What are requirements of critical section. **[8]**

b) What is producer consumer problem? Write a solution to producer consumer problem. **[10]**

OR

Q8) a) Explain interrupts handling approach and compare and swap instruction for mutual exclusion. **[8]**

b) What is Dining philosopher problem? Explain solution to dining philosopher problem using monitors. **[10]**

Q9) a) Explain memory partitioning techniques with example. **[8]**

b) What is paging? Explain the process of address translation in paging. **[8]**

OR

Q10)a) What is Page replacement? Explain page replacement algorithm with example. **[8]**

b) What is fragmentation? Explain the types of fragmentation. How it can be handled. **[8]**

Q11)a) Explain C-SCAN and SSTF disk scheduling algorithm with example. **[8]**

b) With respect file system explain disk block allocation methods. **[8]**

OR

Q12)a) What is record blocking? What are the methods of record blocking? **[8]**

b) What is RAID? Explain the advantages and disadvantages of RAID. Also explain seven RAID levels in brief. **[8]**

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