Total No. of Questions : 12]

SEAT No. :

P1421

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

SYSTEM PROGRAMMING & OPERATING SYSTEMS

(2008 Pattern)

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 answer books.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Figures to the right side indicate full marks.***
5) ***Assume Suitable data if necessary.***

SECTION - I

Q1) a) What are different databases that are used for design of PASS-1 of a two pass Assembler. Give the format for each one of these databases. **[10]**

b) What is the use of conditional expansion of macro? Which pseudo OPs are used to support conditional expansion? Give example. **[8]**

OR

Q2) a) Draw a flow chart for pass - I of two pass assembler design. **[8]**

b) What is forward reference? How it is handled in a single pass assembler. **[4]**

c) What is the use of the stack in micro processor. **[6]**

Q3) a) Explain overlay structure. What is dynamic binding? **[8]**

b) Explain in brief absolute loader scheme. What are advantages and disadvantages of this scheme. **[8]**

OR

P.T.O.

Q4) a) Comment on statement "Direct linking loader is a general relocatable loader". **[6]**

b) What is loader? What are its basic functions? **[5]**

c) Explain the term static linking and dynamic linking. **[5]**

Q5 a) What are different scheduling algorithms? Explain with examples. **[8]**

b) What is process. Explain state transition diagram. **[8]**

OR

Q6) a) Explain the content of Process Control Block (PCB). **[8]**

b) Explain following system calls. **[8]**

i) PS ii) Fork

iii) Join iv) Exec

SECTION - II

Q7) a) What is mutual Exclusion? What are requirements to support mutual Exclusion? **[6]**

b) Explain hardware approach for mutual Exclusion with its advantages & disadvantages. **[6]**

c) What is deadlock prevention? Explain in detail approaches for deadlock prevention. **[6]**

OR

Q8) a) Write a solution to reader writer problem using semaphore with reader have priority. **[10]**

b) Explain types of message passing system used in interprocess communication. **[8]**

Q9) a) Write proper examples explain memory allocation strategies first fit, best fit and worst fit. Also explain their advantages and disadvantages. **[8]**

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

OR

Q10) a) What is TLB? Explain the paging system with the use of TLB? What are the advantages of TLB. **[8]**

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

Q11) a) What is RAID? Explain RAID levels with their advantages and disadvantages. **[8]**

b) With respect to file system explain free space management. What are the technique for free space management. Explain in details. **[8]**

OR

Q12) a) Explain different allocation methods used in file system implementation. **[8]**

b) What information is present in directories? Explain the structure of directory in details. **[8]**

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