Total No. of Questions : 12]

SEAT No. :

P4022

[Total No. of Pages : 2

[5155] - 270
M.E. (Computer Engineering)
OPERATING SYSTEM DESIGN
(2013 Pattern)

Time : 3 Hours] *[Max. Marks : 50*

Instructions to the candidates :

1) ***Neat diagram must be drawn whenever necessary.***
2) ***Assume suitable data, if necessary.***
3) ***Figures to the right indicate full marks.***

Q1) a) What do you mean by the transformation of a resource? What are the four resources of a virtual computer? **[5]**

b) How do the base and bound registers control access to memory in user mode? What if they were used in system mode? **[4]**

OR

Q2) a) State and explain the UNIX process related system calls. **[5]**

b) What is Little language? Explain it using print f and title line example. **[4]**

Q3) a) When race condition will occur? What is race condition? Explain the race condition involving the increment of the shared variable. **[4]**

b) What is the basic idea of the Producer Consumer IPC pattern? **[4]**

OR

Q4) a) What is mean by highest - response ratio - next scheduling and shortest - job - first scheduling? What is response ration? **[4]**

b) Explain how indirection formats are an example of separation of concepts. **[4]**

Q5) a) What are the three objects the simple operating system implements, and what operations are allowed on them? **[4]**

b) What is process dispatching? State the various points in the operating system from where dispatcher is called? **[4]**

OR

P.T.O.

Q6) a) What does it means when the timer interrupt? State this interrupt of what is going on in the simple operating system? **[4]**

b) What are the disadvantages of using two operating systems in a multiprocessor system? **[4]**

Q7) a) State and explain the process of creating a load module from source program? What is object module? Explain it with format. **[4]**

b) Give the relative advantages and disadvantages of load time dynamics linking and run time dynamic linking **[4]**

OR

Q8) a) Explain the memory management design problem **[4]**

b) What is the cost of virtual memory? Explain it by taking suitable example. **[4]**

Q9) a) How disk performance can be improved in operating system using caching? Explain the design techniques for caching and hinting. **[4]**

b) What is the purpose of file name extensions? Give ant eight examples. **[4]**

OR

Q10)a) How file blocks are located on disks? What is mean by continuous file and interleaved files? Which is better solution? **[4]**

b) Explain the design techniques for hierarchical names. Elaborate using computer sciences examples **[4]**

Q11)a) State and explain the resource management issue? Why efficiency is hard to define in context with resource management? **[5]**

b) What is Little Law? Explain the mathematical model of scheduling as a system of queues **[4]**

OR

Q12)a) What is the importance of protection of resources? State and explain the resources that needs protection **[5]**

b) How cryptography can be used for privacy? What is mean by digital signature? How it ensures its functionality? [4]

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