

B.E. (Information Technology)
ADVANCED OPERATING SYSTEMS
(2008 Course) (Elective - I) (Semester - I)

Time : 3 Hours]

[Max. Marks : 100

Instructions to the candidates:

- 1) Answer Q1 or Q2, Q3 or Q4, and Q5 or Q6 from Section - I and Q7 or Q8, Q9 or Q10, and Q11 or Q12 from Section - II.*
- 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 indicate full marks.*
- 5) Assume suitable data if necessary.*

SECTION - I

Q1) a) Explain following UNIX commands with example: **[8]**

Chgrp, wall, chown, ftp

b) Explain any four system calls with respect to process management. **[8]**

OR

Q2) a) Differentiate between a process and thread. Explain multithreading with example. **[8]**

b) Explain various primitives used for process synchronization. **[8]**

Q3) a) Draw and explain structure of PCB in KMOS. **[8]**

b) Explain the data structures used by KMOS. **[8]**

OR

Q4) a) What is process dispatch? Write functional specifications of process DISPATCH in KMOS. **[8]**

b) Give functional specifications of KMOSSTRART and KMOSCLOCK. **[8]**

Q5) a) Differentiate between multitasking O.S. and multiprocessing O.S. What are the advantages of using multiprocessor systems? **[8]**

b) Explain the types of multiprocessor operating system with eg. **[10]**

OR

Q6) Write short notes on following [Any Three] **[18]**

- a) Monolithic kernel.
- b) Multi tasking OS.
- c) Design considerations of multiprocessing O.S.
- d) Process Synchronization.

SECTION - II

Q7) a) Explain the concept of High memory mapping. **[8]**

b) What is a slab? Explain different components of slab allocator. **[10]**

OR

Q8) a) Write pseudo C' code for kcalloc (), vmalloc and kfree () functions and explain their use. **[10]**

b) Explain the concept of statically allocating on the stack. **[8]**

Q9) a) Write a note on generalized device driver. **[8]**

b) Explain the process of unification of files and I/O devices. **[8]**

OR

Q10) a) Explain various disk device driver access strategies. **[8]**

b) Explain the concept of I/O scheduler with eg. **[8]**

Q11) a) Explain the following system calls related with file system management: **[8]**

- i) Mount
- ii) Unmount
- iii) Link
- iv) Lseek

b) Explain the concept of file system abstraction. **[8]**

OR

Q12) a) Write a note on VFS. **[8]**

b) Explain the process of mapping of file blocks with relevant system calls. **[8]**

