

17512

16117

3 Hours / 100 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
  - (2) Answer each next main Question on a new page.
  - (3) Illustrate your answers with neat sketches wherever necessary.
  - (4) Figures to the right indicate full marks.
  - (5) Assume suitable data, if necessary.
  - (6) Use of Non-programmable Electronic Pocket Calculator is permissible.
  - (7) Mobile phone, Pager and any other Electronic communication devices are not permissible in Examination Hall.

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|-----------|---------------------------------------------------------------------------------------|--------------|
| <b>1.</b> | <b>(A) Attempt any THREE :</b>                                                        | <b>12</b>    |
|           | (a) Define realtime operating system. Explain with the help of example.               |              |
|           | (b) Describe the purpose of system calls ? State two system calls with its functions. |              |
|           | (c) Define swapping ? When it is used ?                                               |              |
|           | (d) List and state any four services provided by an operating system.                 |              |
|           | <b>(B) Attempt any ONE :</b>                                                          | <b>6</b>     |
|           | (a) Explain the concept of variable memory partitioning with example.                 |              |
|           | (b) List and explain components of operating system.                                  |              |
| <b>2.</b> | <b>Attempt any FOUR :</b>                                                             | <b>16</b>    |
|           | (a) List and explain major features of unix.                                          |              |
|           | (b) Describe evolution of operating system.                                           |              |
|           | (c) Describe single level and two level directory structures.                         |              |
|           | (d) Explain structure of unix operating system with the help of diagram.              |              |
|           | (e) Define thread. State any three benefits of thread.                                |              |
|           | (f) Describe CPU and I/O burst cycle with the help of diagram.                        |              |

- 3. Attempt any FOUR :** **16**
- (a) Explain layered operating system structure.
  - (b) List & explain any four file attributes.
  - (c) List & explain various types of multi-threading models.
  - (d) Explain in detail how deadlock can be handled.
  - (e) State and explain criteria used in differentiating CPU scheduling.
- 4. (A) Attempt any THREE :** **12**
- (a) Describe the steps involved in booting process.
  - (b) Explain process control block with suitable diagram.
  - (c) Explain microkernel operating system structure.
  - (d) Differentiate between short term, medium term and long term scheduling.
- (B) Attempt any ONE :** **6**
- (a) Draw and explain inter-process communication model.
  - (b) List different file allocation methods. Explain any one with suitable diagram and example.
- 5. Attempt any TWO :** **16**
- (a) Define process. Describe process creation and termination.
  - (b) Explain the pre-emptive and non-pre-emptive type of scheduling. State when pre-emptive and non-pre-emptive type scheduling is used.
  - (c) Explain priority scheduling algorithm with example. List its advantages and disadvantages.
- 6. Attempt any FOUR :** **16**
- (a) What are the different responsibilities of memory management ? Explain.
  - (b) Differentiate between linux and unix.
  - (c) Describe Distributed Operating System.
  - (d) Describe sequential file access method.
  - (e) Explain context switch with suitable example.
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