

Time: 2½ hrs.**Marks:75****Note:**

1. All questions are compulsory with internal choice.
2. Draw neat diagrams wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 Answer the following (any Three) (15)**
- (a) Explain the following terms of Software Fault tolerance with its types:
- N-Version Programming
 - Recovery Blocks
 - Check-pointing and Rollback Recovery
- (b) Explain process life cycle with the help of a diagram.
- (c) Define OS and explain functions of OS?
- (d) Explain the characteristics of the OS?
- (e) Explain the following terms
- Mobile operating system
 - Real time operating system
 - Linux operating system
- (f) Explain any two type operating system with its features and drawbacks.
- Q.2 Answer the following (any Three) (15)**
- (a) Explain Peterson's solution, conditions and drawbacks.
- (b) Explain semaphores and its types.
- (c) Explain the difference between process and thread.
- (d) Explain thread control block with the help of a diagram?
- (e) Explain process synchronization in detail with its Features and Drawback?
- (f) Explain critical section problems with example.
- Q.3 Answer the following (any Three) (15)**
- (a) Define deadlock and explain in what condition a deadlock can arise?
- (b) Explain the following terms
- Logical and physical address space
 - Static and dynamic loading
- (c) Explain fragmentation and its type with suitable examples?
- (d) Explain Starvation with suitable examples?
- (e) Explain the following category of fixed partition allocation
- First fit
 - Best fit
 - Worst fit
- (f) Explain the difference between deadlock and starvation?
- Q.4 Answer the following (any Three) (15)**
- (a) Explain uniprocess scheduling and its types with the help of an example?
- (b) Explain Context switching with the help of a diagram?
- (c) Explain FCFS with an example?
- (d) Explain process scheduling queues and its importance?
- (e) Explain the difference between long term, short term and medium term scheduler?
- (f) Define Multi Process scheduling in OS and explain approaches to multi process scheduling?

Q.5

Answer the following (any Three)

(15)

- (a) Explain OI File System Structures With The Help Of Diagram?**
- (b) Explain device controller in hardware OS?**
- (c) Elaborate the types of program threads?**
- (d) Explain the following terms:**
 - **User Level Libraries**
 - **Kernel Level Modules**
 - **Hardware**
- (e) Explain computer security classification in OS?**
- (f) Define OTP. Explain various ways to generate OTP.**

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