

**Note :—**

- 1 Part A may be attempted in first 6 pages of Answer Sheet  
भाग क के सभी उत्तर, उत्तर-पुस्तिका के प्रथम छ पृष्ठों में ही करने हैं।
- 2 Part B in rest of the Sheets of Answer Sheet  
भाग ख के उत्तर, उत्तर-पुस्तिका के अगले शेष पृष्ठों में लिखिये।
- 3 Answers may be given in English or Hindi  
प्रश्नों के उत्तर अंग्रेजी अथवा हिन्दी में दीजिये।

**PART - 'A'**

**1. Answer any ten questions :**

**(10x2=20)**

- (a) What are the main purpose of an operating system ?
- (b) What is process synchronization ?
- (c) What is a real - time system ?
- (d) Define segmentation
- (e) What is an interrupt ?
- (f) Define linked allocation?
- (g) What is a compiler ?
- (h) Define paged allocation ?
- (i) What is the relation between operating system and computer hardware ?
- (j) What is an assembler ?
- (k) Explain how multiprogramming increases the utilization of CPU ?
- (l) What are the various methods of handling deadlocks?
- (m) Briefly explain the indexed allocation method ?

**2. Answer any five questions :**

**(5x4=20)**

- (a) Differentiate between Batch processing system and Real time processing system ?
- (b) Define the process ? Explain the process states with diagram ?
- (c) Explain the different techniques to recover system from dead lock ?

- (f) Explain the various types of scheduling criteria?
- (g) Briefly explain the concept of paged allocation and segmentation?
- (h) Briefly explain about single level, two level, and Tree Structured directories?
- (i) Discuss briefly about file protection?
- (j) Explain partitioned allocation?

### PART- B

Answer any three questions :

(3x20=60)

1. (a) Explain the overview of an operating system with neat sketch?
- (b) Describe essential properties of Real Time and Network Operating Systems?
4. (a) What are the necessary conditions for dead lock to occur?
- (b) How a system can detect and recover from dead lock? Explain any one algorithm for recovery from dead lock?
5. (a) What is a virtual memory?
- (b) Discuss the methods of virtual memory management.
6. (a) Explain the three allocation methods in file system. Illustrate each of them with proper diagram and example.
- (b) Explain in brief about file protection.
7. (a) Explain different operations on file?
- (b) Write a short notes on Linked file allocation methods?