**Bachelor of Science (B.Sc.) Semester—III (C.B.S.) Examination**

**COMPUTER SCIENCE (Operating Systems)**

**Paper—II**

Time : Three Hours] [Maximum Marks : 50

**Note :—** (1) **ALL** questions are compulsory and carry equal marks.

(2) Illustrate your answers with suitable example and draw neat and labelled diagrams wherever necessary.

**EITHER**

1. (A) What is a process ? Explain process states in detail. 5

(B) Explain "shortest job first" CPU scheduling algorithm with suitable diagram. 5

**OR**

(C) Write notes on the following :

(i) Long term scheduler

(ii) Short term scheduler

(iii) Medium term scheduler. 5

(D) Draw life cycle of thread and explain. 5

**EITHER**

2. (A) Explain deadlock prevention methods. 5

(B) Write notes on the following :

(i) Deterministic Modeling

(ii) Simulators. 5

**OR**

(C) Explain safety algorithm for deadlock avoidance. 5

(D) Explain resource allocation graph in detail. 5

**EITHER**

3. (A) Explain fixed equal multiple partition memory management scheme with two advantages and disadvantages. 5

(B) Write notes on the following in context of memory management :

(i) Protection

(ii) Shaving. 5

**OR**

(C) Explain segmentation with paging. 5

(D) What is swapping ? Explain swap-in and swap-out process with diagram. 5

**EITHER**

4. (A) What is input/output buffering ? List types of buffering. Explain any two. 5

(B) Write short notes on :

(i) Digital Signature

(ii) Biometric Authentication. 5

**OR**

(C) How many levels does a RAID support ? Explain RAID LEVEL 0 (Stripping) and RAID LEVEL 1 (Mirroring). 5

(D) Explain cryptography with suitable example. 5

5. (A) Write short note on concurrent process. 2½

(B) Explain circular wait condition in deadlock. 2½

(C) What is internal and external fragmentation ? Explain with example. 2½

(D) Write short note on Record Blocking. 2½