

## **BCA–10**

### **Operating System**

Bachelor of Computer Applications

(BCA-11/16/17)

Third Semester, Examination, 2018

**Time : 3 Hours**

**Max. Marks : 80**

**Note :** This paper is of **eighty (80)** marks containing **three (03)** Sections A, B and C. Learners are required to attempt the questions contained in these Sections according to the detailed instructions given therein.

#### **Section–A**

##### **(Long Answer Type Questions)**

**Note :** Section ‘A’ contains four (04) long answer type questions of nineteen (19) marks each. Learners are required to answer *two* (02) questions only.

1. Define Operating System. Explain the following :
  - (a) Batch systems
  - (b) Distributed operating system
  - (c) Real-time operating system
  - (d) Multiprocessor system
  - (e) Multiprogramming system

2. Define inter process communication. Explain the following :
  - (i) Shared Memory
  - (ii) Message passing
3. What are threads ? What two advantages do threads have over multiple processes ? What are the major disadvantages do they have ? Suggest one application that would benefit from the user of threads.
4. Describe the various disk scheduling techniques with example. How to choose an optimal technique among the disk scheduling technique ? Explain.

### **Section–B**

#### **(Short Answer Type Questions)**

**Note :** Section ‘B’ contains eight (08) short answer type questions of eight (08) marks each. Learners are required to answer *four* (04) questions only.

1. What is the race condition ?
2. Write short notes on the following :
  - (a) Belady’s Anomaly
  - (b) Thrashing
  - (c) Locality of references
  - (d) Paging
3. Explain contiguous memory management technique with advantages and disadvantages.
4. Explain Cryptography.
5. What is the purpose of resource allocation graph ? Explain the combined approach to deadlock handling.
6. Describe the semaphore. How does the semaphores help in the process synchronization ?

7. What are the differences between user level threads and kernel level threads ? Compare in which conditions one performs better than another.
8. Define a file system. What are the various components of a file system ?

### **Section–C**

#### **(Objective Type Questions)**

**Note :** Section ‘C’ contains ten (10) objective type questions of one (01) mark each. All the questions of this Section are compulsory.

1. In UNIX which system call creates the new processes ?
  - (a) Fork
  - (b) Create
  - (c) New
  - (d) None of the above
2. Which of the following is not a valid state of a thread ?
  - (a) Running
  - (b) Parsing
  - (c) Ready
  - (d) Blocked
3. The interval from the time of submission of a process to the time of the completion is termed as :
  - (a) Waiting time
  - (b) Turnaround time
  - (c) Response time
  - (d) Throughput

4. Time quantum is defined in :
  - (a) SJF
  - (b) Priority scheduling algorithm
  - (c) Multilevel queue scheduling algorithm
  - (d) Round robin scheduling algorithm
  
5. Which one of the following is the deadlock avoidance algorithm ?
  - (a) Banker's algorithm
  - (b) Round robin algorithm
  - (c) Elevator algorithm
  - (d) Karn's algorithm
  
6. What is compaction ?
  - (a) A technique for overcoming internal fragmentation
  - (b) A paging technique
  - (c) A technique for overcoming external fragmentation
  - (d) A technique for overcoming fatal error
  
7. Working Set Model for page replacement is based on the assumption of :
  - (a) Modularity
  - (b) Locality
  - (c) Globalization
  - (d) Random Access

8. Which one of the following is the address generated by CPU ?
- (a) Physical address
  - (b) Absolute address
  - (c) Logical address
  - (d) None of the above
9. File type can be determined by :
- (a) File name
  - (b) File extension
  - (c) File identifier
  - (d) None of the above
10. File virus attaches itself to :
- (a) Source file
  - (b) Object file
  - (c) Executable file
  - (d) All of the above

