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3 (Sem-3 /CBCS) CSC HC 2

2020

(Held in 2021)

**COMPUTER SCIENCE**

(Honours)

Paper : CSC-HC-3026

**(Operating System)**

Full Marks : 60

Time : Three hours

**The figures in the margin indicate full marks for the questions.**

1. Answer the following as directed :  $1 \times 7 = 7$

(a) Process is an instance of a program in execution.

(State true **or** false)

(b) A \_\_\_\_\_ is a light-weight process with reduced state.

(Fill in the blank)

Contd.

- (c) A critical region is a program segment where shared resources are used.  
(State true or false)
- (d) Shortest Job First (SIJ) is a preemptive scheduling algorithm.  
(State true or false)
- (e) With paging, there is no external fragmentation.  
(State true or false)
- (f) Page fault occurs when the page is not found in memory.  
(State true or false)
- (g) \_\_\_\_\_ system call is used for creating a new process.  
(Fill in the blank)

2. Define the following terms :  $2 \times 4 = 8$

- (a) Time-sharing system
- (b) Semaphore
- (c) Race condition
- (d) Segmentation.

3. Answer **any three** of the following questions :  
5×3=15

- (a) What are the basic functions of operating system ?
- (b) Give brief description of different types of operating system.
- (c) State the goals of scheduling algorithms.
- (d) What is deadlock? What are the necessary and sufficient conditions for deadlock? Explain briefly:
- (e) Briefly explain device management activities of Operating System.

4. Answer **any three** of the following questions :  
10×3=30

- (a) What is thread? What are the benefits of multi-threading? Briefly explain a thread library.
- (b) Explain the differences between segmentation and paging.
- (c) Explain the readers-writers problem.

- (d) Write short notes on directory structure and file operations.
- (e) Write short notes on kernels and system calls.

