3 (Sem–3/CBCS) CSC HC 2

2021

(Held in 2022)

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 questions as directed : 1×7=7

   (a) A _____ operating system may run many programs on a single processor. *(Fill in the blank)*

   (b) _____ system call is used to create a child process identical to the parent. *(Fill in the blank)*

(c) Each process has its own address space. *(State True **or** False)*

(d) Threads can be implemented in user space or in the kernel. *(State True **or** False)*

(e) _____causes all the processes to wait forever. *(Fill in the blank)*

(f) _____ is a non-preemptive scheduling algorithm. *(Fill in the blank)*

(g) In any secure system, users must be authenticated. *(State True **or** False)*

2. Define the following terms : 2×4=8

(a) Kernels

(b) Threads

(c) Virtual address space

(d) Paging.

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

(a) State the basic functions of operating system.

(b) What is system call ? Give example of *any five* system call.

(c) Give brief description of Round-Robin scheduling.

(d) What are the advantages and disadvantages of implementing threads in user space ?

(e) Write in brief about Hierarchical Directory Systems.

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

(a) Give description of different types of operating system.

(b) Describe the issues related to inter-process communication.

(c) Explain how time quantum value and context switching time affect each other, in a round-robin scheduling algorithm. 5+5=10

(d) What is deadlock ? What are the necessary and sufficient conditions for deadlock ? Describe Banker's algorithm for avoidance of deadlock.

(e) Describe *any two* file allocation methods.

(f) Write short notes on security policy mechanism and authorization.
