Total number of printed pages–4

**3 SEM BCA (CBCS) 5**

**2018**

(December)

**COMPUTER APPLICATION**

Paper : 3·5

***(Operating System)***

*Full Marks : 60*

Time : Three hours

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

*Answser* ***all*** *the questions.*

1. Answer the following : 1×10=10

   *a.* What is a batch operating system ?

   *b.* Write one difference between program and process.

   *c.* Whenever a new job is entered into the system, it is stored in the _____.
   (Fill in the blank)

   *d.* What is MBR ?

*Contd.*

e. Define BIOS.

f. Define throughput.

g. What is a safe state ?

h. What is a wait-for graph ?

i. What is a thread ?

j. What is the use of a device driver ?

2. Answer the following : 2×5=10

a. Write the difference between synchronous I/O and asynchronous I/O.

b. What is Belady's anomaly ?

c. What is internal fragmentation ?

d. What is the difference between kernel and shell ?

e. Draw the process state diagram.

3. Answer the following : ***(any five)*** 3×5=15

a. What are the three basic forms of input and output systems ? Explain.

b. Explain shared memory concept for process communication.



c. Differentiate between multiprogramming and multitasking.

d. What is swapping ? When is it used ?

e. Why is it important for the scheduler to distinguish between I/O-bound programs and CPU-bound programs.

f. Explain the critical section problem.

4. Answer the following : ***(any five)*** 4×5=20

a. List any four services provided by OS. Explain any one of them?

b. What are the conditions necessary for a deadlock to occur and how can it be avoided ? Explain.

c. Explain the concept of paging with TLB.

d. What is demand paging ? Explain the steps in handling a page fault.

e. For the following reference string find the number of page fault for three frames using FIFO and LRU : 7 0 1 2 0 3 0 4 2 3 0 3 2 1 2 0 1 7 0 1

f. Explain tree structured directories and acyclic graph directories with diagram.

5. Answer the following : ***(any one)*** 5

*a.* Explain, with diagram, the steps involved in performing DMA transfer.

*b.* Explain different file allocation methods.

---