AE-1313

B.C.A. (Part - II)
Term End Examination, 2016-17

OPERATING SYSTEM

Time : Three Hours]   [*Maximum Marks* : 100
[*Minimum Pass Marks* : 33

Note : Answer **all** questions. There is internal choices in each Unit. The figures in the right-hand margin indicate marks.

1. Answer the following short answer type questions : $2\frac{1}{2}{\times}10$

   (*a*) Define Operating System.

   (*b*) Explain batch operating system.

   (*c*) What is inter-process communication ?

   (*d*) What is Semaphore ?

   (*e*) What is Paging ?

   (*f*) Define Thrashing.

   (*g*) What is virtual memory ?

(2)

(*h*) What do you mean by directory ?

(*i*) Define Monitor.

(*j*) Explain critical section problem.

Unit-I

2. What is process ? Explain process state diagram in detail. 15

OR

Explain the following :

(*a*) Operating system as a resource manager

(*b*) Distributed operating system

Unit-II

3. What do you mean by deadlock avoidance ? Explain Banker's algorithm with suitable example. 15

OR

Explain the classical problems of synchronization in detail.

Unit-III

4. What is Segmentation ? Explain segmentation with paging. 15

OR

(3)

Consider the following page reference string :

1, 2, 3, 4, 2, 1, 5, 6, 2, 1, 2, 3, 7, 6, 3, 2, 1, 2, 3, 6

How many page faults would occur for the following replacement algorithms, assuming three frames ? Assume that all frames are initially empty, so your first unique pages will cost one fault each.

(*a*) LRU (Least Recently Used) replacement

(*b*) FIFO (First-In-First-Out) replacement

(*c*) Optimal replacement

Unit-IV

5. Explain the techniques for device management.   15

OR

Explain the following :

(*a*) Buffering

(*b*) Disk Structure

Unit-V

6. Explain the following :   15

(*a*) Logical File system

62_BSP_(4)   *(Turn Over)*

(4)

(*b*) Directory Implementation

OR

Explain the free-space management in detail.

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