K (Printed Pages 4)

18/131-C

B.C.A. (Third Semester)

Examination, 2018

Paper : Third (303)

(Principles of Operating System)

Time : Three Hours] *[Maximum Marks : 70*

Note : Attempt questions from **all** sections as per instructions.

Section - A

(Very Short Answer Type Questions)

Note : Attempt **all** parts of this question. Give answer of each part in about 50 words. 1½×10=15

1. (i) List the objectives of an operating system.

   (ii) What is shell?

   (iii) What is interrupt?

P.T.O.

(iv) What is a file.

(v) What is thrashing?

(vi) Define process control block.

(vii) What is fragmentation?

(viii) What is Linux?

(ix) State the components of the Linux system.

(x) Why are page sizes always powers of 2?

Section - B

(Short Answer Type Questions)

Note : Attempt **all** questions. Give answer of each question in about **200** words. 7×5=35

2. Discuss the difference among short-term, medium-term and long term scheduling

OR

Explain different services provided by the operating system.

3. Explain producer consumer problem.

OR

Write short notes on cache memory organization.

4. Explain the techniques used to present deadlock.

OR

What is a critical section? Discuss the solution of the critical section problem.

5. What is demand paging? Describe the process of demand paging in OS.

OR

Explain the difference between time sharing and real time systems.

6. Write a note on Unix operating system.

OR

Explain how swap space is used, located on the disk and managed.

Section - C
(Long Answer Type Questions)

Note : Attempt any **two** questions. Give answer of each question in about 500 words. 10×2=20

7. Consider the following page reference string 3, 5, 4, 4, 5, 8, 9, 9, 7, 7, 8, 7, 1, 6, 4, 3, 5, 3, 4
   How many page fault would occur for the following replacement algorithms. Assume three frames and all frames are initially empty.
   (I) FIFO replacement
   (ii) LPU replacement
   (iii) Optimal replacement
8. What is paging? Explain the difference between paging and segmentation memory management scheme.
9. Explain the various CPU scheduling algorithms by taking suitable example.
10. Give a detailed description of the system structure of operating system.
11. Write short notes on any **two** of the following:
    (i) Resident monitor
    (ii) Principle of concurrency
    (iii) Scheduling criteria.