F.Y.BSc.IT - SEM I - A.T.K.T. - Feb'20

O.S.

13-2-20

Sub- Operating System **Class-Fy(BSc).IT**

(2½ Hours) **[Total Marks: 75]**

N. B.: (1) All questions are compulsory.

(2) Make suitable assumptions wherever necessary and state the assumptions made.

(3) Answers to the same question must be written together.

(4) Numbers to the right indicate marks.

(5) Draw neat labeled diagrams wherever necessary.

(6) Use of Non-programmable calculators is allowed.

1. Attempt any three of the following: 15

a. What is Operating System? Explain the role of operating system as extended machine.

b. Write a short note on Fifth Generation of Operating System.

c. Explain the Round Robin scheduling algorithm with suitable example

d. Explain the Preamptive SJF scheduling algorithm with suitable example

e. Write a short note on Process Model.

f. Explain the dining philosopher's problem.

2. Attempt any three of the following: 15

a. . List various page replacement algorithms. Explain any one with example.

b. Explain in brief concept of segmentation.

c. Explain page replacement algorithm using suitable example.

d. List and explain any five operations performed on Files.

e. Write the meaning of following file attributes.

1. Owner 2. Creation time 3. Current size 4. Key position 5. Protection

f. List and explain any five operations performed on Directories.

3. Attempt any three of the following: 15

a. Explain the concept of direct memory access.

b. How deadlock is prevented?

c. What is interrupt? Explain its types.

d. Explain preemptable and non-preemptable resources.

d. Write a short note on Ostrich Algorithm.

e. Explain various levels of RAID.

f. Explain the process of Deadlock Detection .

4. Attempt any three of the following: 15

A Write a note on Type-1 and Type-2 Hypervisor.

B Explain any five advantages of virtualization.

C List and explain five essential characteristics of Cloud.

D Write a note on Virtual Machine .

E What is Master-Slave Multiprocessors Operating System?

F List various multiprocessor operating types. Explain any one.

5. Attempt any three of the following: 15

a. Explain the booting process of Linux

b. List and explain any five file-system related system calls in Linux.

c. Explain process lifecycle in Android.

d. Explain the programming layers in modern windows operating System.

e. Explain the booting process of windows OS.

f. Explain the fundamental concept of memory in Windows.