Roll No. .....

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(2033)

UG (CBCS) IIIrd Year Annual Examination

3340

B.A. COMPUTER APPLICATION

(Operating System)

(DSE-1A)

(Common with B.Sc. Physical Science)

(DSE-2A)

Paper : COMP 301 TH

Time : 3 Hours] **[Maximum Marks : 70**

Note :– Part–A is compulsory. Attempt *one* question each from Parts–B, C, D and E.

Part–A

(Compulsory Question)

1. Fill in the blanks/True/False/MCQ :

   (i) In ..... system, jobs of similar requirements are grouped together and then executed without any user interaction.

(ii) The hardware unit in a system which translates the logical address into physical address at runtime is called as ..... .

(iii) Multiprogramming Operating System improves efficiency and throughput of a system.

(True/False)

(iv) The scheduler is the part of an Operating System that determines the priority of each process.

(True/False)

(v) Paging allows the physical address space of a process to be non-contiguous. (True/False)

(vi) The name of the script is stored in which special parameter ?

(a) $1 (b) $0

(c) $# (d) $*

(vii) The operating system that allows frequent switching from one task to another task is :

(a) Single User (b) Batch Processing

(c) Real Time (d) Time Sharing

(viii) Memory management technique in which system stores and retrieves data from the secondary storage for the main memory is called as :

(a) Allocation (b) Paging

(c) Mapping (d) Fragmentation

(ix) An instruction is fetched by the CPU from the main memory according to the value of :

(a) Program Counter

(b) Status Register

(c) Instruction Register

(d) Program Status Word

(x) In priority scheduling algorithm, when a process arrives at the ready queue, its priority is compared with the priority of :

(a) All processes

(b) Currently running process

(c) Parent process

(d) Blocked state processes $1 \times 10 = 10$

Part–B

2. (a) What is the difference between system software and application software ? Give few examples of both system software and application software.

(b) Discuss different kinds of OS strategies. $7\frac{1}{2} \times 2 = 15$

3. Explain the various types of operating system along with advantages and disadvantages of each in detail. 15

Part–C

4. Define operating system. Discuss the various factors involved in operating system design. 15

5. (a) What is the difference between pre-emptive and non-pre-emptive CPU scheduling algorithms ?

   (b) Explain Shortest Job First and Priority Scheduling Algorithm. 7½×2=15

Part–D

6. (a) What is Virtual Memory ? How does operating system implement virtual memory ?

   (b) Describe the various memory allocation techniques in detail. 7½×2=15

7. Write short notes on the following :

   (a) Internal Fragmentation vs External Fragmentation

   (b) First Fit, Best Fit and Worst Fit

   (c) Demand Paging

   (d) Page Table

   (e) Page Fault 3×5=15

Part–E

8. Explain shell in detail. What are the different types of Shells available ? 15

9. (a) What are the various editors present in Linux ?

   (b) Discuss the role of system call. What are various system calls available in an operating system ? 7½×2=15