COMPUTER SCIENCE

Paper : CS03 : Theory-A, Operating System Concepts

Time Allowed : 3 Hours **Maximum Marks : 65**

Note : Attempt *five* questions in all by including *one* question from each Section. Entire Question No. **9** is compulsory.

SECTION – A

1. Describe the different types of Operating System (OS) giving their differences and advantages in detail. 6

2. (a) What is the need of an Operating System ?
   (b) Describe the main functions of an Operating System. 3,3

SECTION – B

3. (a) How a process in represented in the operating system by its PCB?
   (b) Explain various process states. Also show the movement of a process moving from one state to another with the help of diagram. 3,3

4. (a) Name and explain various scheduling criteria used in Process Scheduling Algorithms.
   (b) Explain any *two* non-preemptive Process Scheduling Algorithms with examples. 3,3

SECTION – C

5. Explain the term Deadlock. State and explain the necessary conditions for the occurrence of Deadlock in computer system. 6

6. When is a system is safe state ? Which algorithms are used for keeping system in safe state ? Explain briefly. 6

SECTION – D

7. What do you understand by paging? How it works ?

8. Explain Demand Paging. When does Page Fault occur? Describe the

action taken by OS when it occurs.

(Compulsory Questions)

9. Write short answers :
   (i) Give name of any two Operating Systems.
   (ii) What are the disadvantages of context switching?
   (iii) Waht is Traffic Controller ?
   (iv) Name any *two* Page Replacement Policies.
   (v) Differentiale between External and Internal Fragmentation.
   (vi) Differentiate between the Logical Address Space and Physical Address Space.

   $1 \times 6 = 6$

COMPUTER SCIENCE

Paper : CS04 : Theory-B : C Programming

Time Allowed : 3 Hours   Maximum Marks : 30

Note : Attempt *one* questions from each Section–A, B, C and D. Question No. 9 (Section–E) is compulsory question.

Section–A
6 each

1. What are differences between Algorithm and Flowchart? Explain with example.

2. What are various rules for constructing constants and variables in C language ?

Section–B   6 each

3. What are the various arithmetic operators in C language? Discuss the meaning of each. Also discuss the precedence and associatively of operators.

4. How is "switch" statement different from "if" statement ? Discuss with example.

Section–C   6 each

5. What is Recursion ? What are advantages of using recursion?

6. How are arrays passed to functions ? Write a program in C language to search an element in an array by using the concept of passing an array to a function.

                                                      6 each
Section–D

7. What do you understand by strings ? Write a program in C language to copy one string to another without using inbuilt function.

8. What do you mean by structures in C language. Write a program in C language to create a structure of student containing name, class, age and address of student. Input the data and print the data for one