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CS-02

00121

PGDCA / MCA (I Year) / BCA

Term-End Examination

December, 2011

CS-02 : INTRODUCTION TO SOFTWARE

Time : 2 hours *Maximum Marks : 60*

Note : *Question number **1** is **compulsory.** Attempt **any three** questions from the rest.*

1. (a) Design an algorithm and draw a corresponding flow chart to compute $\frac{X^n}{n!}$, where $0 < n \leq 10$. **7**

(b) Explain the concept of 'spooling' with the help of a diagram. **5**

(c) Define mutual exclusion. How does a semaphore solve the mutual exclusion problem ? Explain with the help of an example. What are the drawbacks of semaphore ? **8**

(d) Write a shell program to find the greatest prime number less than 100. **5**

(e) What is compiler ? Explain the compiler design phases in brief. **5**

2. (a) Discuss the similarities and differences between paging and segmentation. 5

(b) List the major activities performed in the development of a software product. Also, mention the limitations of the development cycle. 5

3. (a) Compare and contrast the disk space management methods, the linked list with Bitmap method. 6

(b) Write a short note on 4 GL. Also, write its limitations. 4

4. (a) Explain the typical phases of Software Development Life Cycle (SDLC). 6

(b) Write the differences between internal and external fragmentation. 4

5. (a) Consider the following processes in the ready queue (at the same time). 6

Process	CPU time
P_1	3
P_2	2
P_3	1
P_4	4
P_5	3

Calculate the average turnaround time and average waiting time for the processes given by :

(i) FCFS (ii) RR (quantum=2)

(b) Define UNIX commands for the following : **1x4=4**

(i) to create a file using any editor

(ii) to run a process in background

(iii) to run a command at a specific time

(iv) to remove a print job from the print queue.