D 6727 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE EXAMINATION, DECEMBER 2016

(CUCSS)

Physics

PHY 3E 04—COMPUTER SOFTWARE AND APPLICATIONS

(2012 Admissions)

Time : Three Hours Maximum : 36 Weightage

Section A

Answer **all** *questions.*
Each question carries 1 *weightage.*

1. What are the fundamentals of language processing ?
2. Define triples and quadruples with suitable example.
3. Define Macro with suitable example.
4. What is the format of assembly language statement?
5. Define the difference between preemptive and non preemptive scheduling with the help of some algorithms ?
6. Explain why self-relocating programs are less efficient than relocatable program.
7. Illustrate the use of the data structures by the analysis and synthesis phases using a block diagram.
8. Clearly explain the advantages of swapping in an operating system.
9. Briefly explain local optimization and global optimization.
10. Define scheduling.
11. With suitable example explain resource status modeling.
12. List the different forms of editors.

(12 × 1 = 12 weightage)

Section B

Two *to be answered out of* 4, 6 *weightage for each.*

13. Discuss in detail with suitable example the design of a two pass assembler.
14. Explain in detail the implementation of interacting processes.
15. With suitable example explain in detail the salient feature of interpreters.
16. Explain in detail the various stages of handling deadlock.

(2 × 6 = 12 weightage)

Turn over

Section C

Four *to be answered out of six.*
Each question carries 3 *weightage.*

17. Illustrate with help of a block diagram the use of the data structures by the analysis and synthesis phases.
18. Distinguish between Pure and Impure interpreters.
19. Extend the toy code generator to handle multiple registers in the CPU. Show various steps in the code generation for the expression $(a + b)/(c + d)$ using 2 CPU registers.
20. Write any sample assembly program.
21. With block diagram illustrate the use of the data structures by the analysis and synthesis phases.
22. List the fundamental steps in program development.

(4 × 3 = 12 weightage)

C 31293 (Pages : 2)

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Section A

Answer **all** *questions.*
Each question carries 1 *weightage.*

1. What are the fundamentals of language specification ?
2. Define a sample system of processes with deadlock.
3. Discuss briefly the objectives of the analysis and synthesis phases of the assembler.
4. Define time sharing and real time operating systems.
5. Explain multi-pass translation.
6. Explain macros and their advantages and disadvantages.
7. Why do most practical compilers require more than one pass ?
8. Write a note on top-down parsing.
9. What are the software primitives for process synchronization ?
10. Briefly explain the compilation of control structures.
11. Discuss the step of Program Testing and Debugging in the process of program development.
12. What is scanning ? Explain the basic tasks of a scanner.

(12 × 1 = 12 weightage)

Section B

Two *to be answered out of four,* 6 *weightage for each.*

13. Describe the structure of a User Interface Management System. Give an example.
14. What is code optimization ? Discuss the different aspects of code optimization and its advantages and disadvantages.

Turn over

15. Explain in detail the design of Intermediate Code Forms of a two pass assembler.

16. Describe deadlock detection and deadlock avoidance strategies.

(2 × 6 = 12 weightage)

Section C

Four *to be answered out of* **six.**
Each question carries 3 *weightage.*

17. Describe the various aspects for designing a linker.

18. Write an assembly language program that checks whether a number is odd or even.

19. Does swapping increase the effective degree of multiprogramming ? Justify your answer. Explain the advantages of swapping in an operating system.

20. Distinguish between pure and impure interpreters.

21. Explain the lexical expansion of the 3 types of strings used with macros during macro expansion.

22. Consider the following set of processes that arrive at time 0, with the length of the cpu-burst time given in milliseconds.

Process	*Burst time*
P1	24
P2	3
P3	3

Find the average waiting time using FCFS method.

(4 × 3 = 12 weightage)