

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2003.

Second Semester

Information Technology

IF 142 — PROGRAM DESIGN AND DEVELOPMENT

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the primary design structures of a pseudocode?
2. State any two advantages and disadvantages of the design tool, Flow chart.
3. Distinguish between data and control variables of a program.
4. Write the pseudocode for printing a footer, at the same line on every page of a document.
5. Define 'hard coding' an array.
6. Suggest a means to access all the elements of an array.
7. List down few specifications used in generating a self explanatory error report.
8. 'Check possibility for having multiple output files defined in a program'. Comment on it
9. Distinguish between File Merge and File Match operators with respect to the objectives of the operations.
10. Explain how EOF can be used as a sentinel value, in controlling loop execution.

PART B — (5 × 16 = 80 marks)

11. (i) What are the phases of typical software development life cycle? Explain the major tasks of each phase in detail. (12)
- (ii) Explain any two design tools used during the design phase for preparing the design document. (4)

12. (a) (i) Write down the need for and advantages of structured design. (6)
(ii) Write an unstructured program code and convert it to an equivalent structured program code. (10)

Or

- (b) (i) Differentiate between interactive and Batch programming. (4)
(ii) Create an interactive program design to do the following : (12)
- * Ask user to login with password
If validated allow to proceed, else repeat login
 - * Ask user to choose a subject from a given list of subjects and quit option
 - * Display a question in the subject selected
 - * Ask user to give answer in a word
 - * Process answer and display back "correct" or "wrong" message
 - * Repeat until the user selects quit option

Write separate utility modules to get the input, process it, and validate it if necessary and respond back.

13. (a) (i) Distinguish between bubble and insertion sort techniques. (6)
(ii) Design a program to sort an array as it is being loaded. (10)

Or

- (b) (i) Compare sequential search, sequential search with early exit, and binary search types. (6)
(ii) Write a program design to search a 2 D array stored in row major order. (10)

14. (a) (i) Describe any four types of edit checking (Input errors) in detail, with sample pseudocode. (12)
(ii) Explain with a sample code, how a Nested IF structure can be converted to equivalent IF statements using AND logic and OR logic. (4)

Or

- (b) (i) Create a program design to illustrate the use of 2 level control breaks with primary read. (10)
- (ii) Explain how to improve Nested IF efficiency in AND logic and OR logic. (6)
- 15. (a) (i) Design a file update program to perform the operations of ADD, MODIFY and DELETE records, assuming only one transaction record for a master record. (12)
- (ii) Define hashing and also any hashing function used with direct access files. (4)

Or

- (b) (i) Describe the two ways of implementing non-sequential access to a file in detail. (10)
- (ii) Define and design an Extract program that selects records using AND logic. (6)