

OCTOBER 2011

U/ID 14655/NCC

Time : Three hours

Maximum : 100 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

All questions carry equal marks.

1. Define System Program.
A system program is a program that is used to manage the system resources and to provide a user interface.
2. What is meant by an algorithm?
An algorithm is a sequence of steps that are used to solve a problem.
3. Mention (any two) basic features of Assembly Language program.
Two basic features of Assembly Language program are: 1. It is a low-level programming language. 2. It is a machine-specific programming language.
4. What is the principle of System programming?
The principle of System programming is to provide a user interface to the system resources.
5. Give (any two) tasks of a translator.
Two tasks of a translator are: 1. To convert the source code into machine code. 2. To generate the object code.
6. List the functions of the analysis phase of a compiler.
The functions of the analysis phase of a compiler are: 1. To check the syntax of the source code. 2. To generate the intermediate code.

7. What are the duties of the Loader?
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8. What is meant by Relocatable program?
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9. Give the importance of program testing.
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10. What is meant by debugging?
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PART B — (5 × 7 = 35 marks)

Answer ALL questions.

All questions carry equal marks.

11. (a) Describe the machine model of a computer system.

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Or

- (b) What makes the difference between executing a high level language program from the programmer's view and the system software view?

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12. (a) How data structures are used by pass 1 of the assembler?

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Or

- (b) How Macro is defined and used? Explain with an example.

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13. (a) Explain the concept of Top Down parsing.

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Or

- (b) Describe the management of dynamic storage allocation.

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14. (a) Discuss :

- (i) Link and go scheme
(ii) Link load and go scheme.

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(ii) Cø n " | ©ÖÖ® HÖÖ C - US® A ø©" | .

Or

- (b) Explain the concept of Linkage Editing.

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15. (a) Explain the model of a software tool with a diagram.

Diagram description: A box labeled 'Software Tool' is connected to a box labeled 'User'. The 'Software Tool' box contains the text 'It helps the user to do his work easily and quickly'. The 'User' box contains the text 'He uses the software tool to do his work'. Arrows indicate the flow of information and interaction between the user and the software tool.

Or

- (b) Explain the concept of debug monitors.

Diagram description: A box labeled 'Debug Monitor' is connected to a box labeled 'Program'. The 'Debug Monitor' box contains the text 'It checks the program for errors and reports them to the user'. The 'Program' box contains the text 'It executes the program and reports errors to the debug monitor'. Arrows indicate the flow of information and interaction between the program and the debug monitor.

PART C — (3 × 15 = 45 marks)

Answer any THREE questions.

All questions carry equal marks.

16. Discuss on the components of system software.

Diagram description: A central box labeled 'System Software' is connected to four surrounding boxes: 'Operating System', 'Language Processors', 'Utilities', and 'Device Drivers'. Arrows indicate the relationship between the system software and its components.

17. How to design a two pass assembler?

Diagram description: A box labeled 'Two Pass Assembler' is connected to two boxes: 'Pass 1' and 'Pass 2'. The 'Pass 1' box contains the text 'It reads the source program and generates the symbol table'. The 'Pass 2' box contains the text 'It reads the symbol table and generates the object code'. Arrows indicate the flow of information and interaction between the two passes.

18. What is meant by code optimisation? Discuss it with examples.

Diagram description: A box labeled 'Code Optimisation' is connected to two boxes: 'Compiler' and 'Programmer'. The 'Compiler' box contains the text 'It optimizes the code generated by the compiler'. The 'Programmer' box contains the text 'He uses the code optimizer to optimize the code'. Arrows indicate the flow of information and interaction between the compiler and the programmer.

19. How to design the Linkage editor for IBM PC?

Diagram description: A box labeled 'Linkage Editor' is connected to two boxes: 'Object Files' and 'Executable File'. The 'Object Files' box contains the text 'It reads the object files and links them together'. The 'Executable File' box contains the text 'It generates the executable file'. Arrows indicate the flow of information and interaction between the object files and the executable file.

20. Discuss on Interpreters and program generators.

Diagram description: A box labeled 'Interpreter' is connected to two boxes: 'Source Program' and 'Object Code'. The 'Source Program' box contains the text 'It reads the source program and interprets it'. The 'Object Code' box contains the text 'It generates the object code'. Arrows indicate the flow of information and interaction between the source program and the object code.