Roll No. | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 09

MCA (Elective-I) (2012 & onward) (Sem.–3)

SYSTEM PROGRAMMING

Subject Code : MCA-305A

Paper ID : [B1161]

Time : 3 Hrs. **Max. Marks : 100**

INSTRUCTION TO CANDIDATES :

1. **SECTIONS-A, B, C & D contains TWO questions each carrying TWENTY marks each and students has to attempt any ONE question from each SECTION.**
2. **SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.**
3. Use of non-programmable **scientific calculator** is allowed.

SECTION-A

1. a) Explain the design of two pass assembler in detail with the help of necessary algorithm.

   b) What are the tasks performed by macro processor? Explain data structures used for macro processor.

2. a) What is Macro Expansion? What are the problems faced by recursive calls? How can you handle recursive calls?

   b) Describe the elements of assembly language programming in the context of Microsoft Macro Assembler (MASM).

SECTION-B

3. a) What is a Relocating Loader? How does it work? What are the limitations of relocating loader which are removed in direct linkage loader?

   b) Define Dynamic Linking. Give the advantages of dynamic linking.

4. a) Define Screen Editor. What are the tasks performed by it in the editing process? For what line editors are used?

   b) Write a short note on 'Bootstrap Loaders'.

SECTION-C

5. a) What is a Compiler? Describe in detail the syntax analysis phase of compilation. What is its input and output?

   b) What is Code Generation? What are the problems in code generation? Explain various issues in the design of a code generator.

6. Explain the following :

   a) Role of finite automata in compiler design

   b) Code optimization techniques

SECTION-D

7. a) What is an Operating System? What are the basic functions of an Operating System? Explain.

   b) What is Process Management? Explain all the types of scheduler.

8. Compare and contrast :

   a) Distributed OS versus Network OS

   b) Mobile OS versus Real-Time OS

SECTION-E

9. **Write Briefly :**

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   a) What is

   b) What is a Structure Editor?

   c) What is Conditional Macro Expansion?

   d) What are the reasons behind writing a multi-pass assembler rather than a single-pass one?

   e) What is YACC?

   f) What do you understand by machine dependent and machine independent code optimization?

   g) What is forward reference problem in an assembler?

   h) What are Device Drivers?

   i) What is USB?

   j) What are Platform Independent Systems?