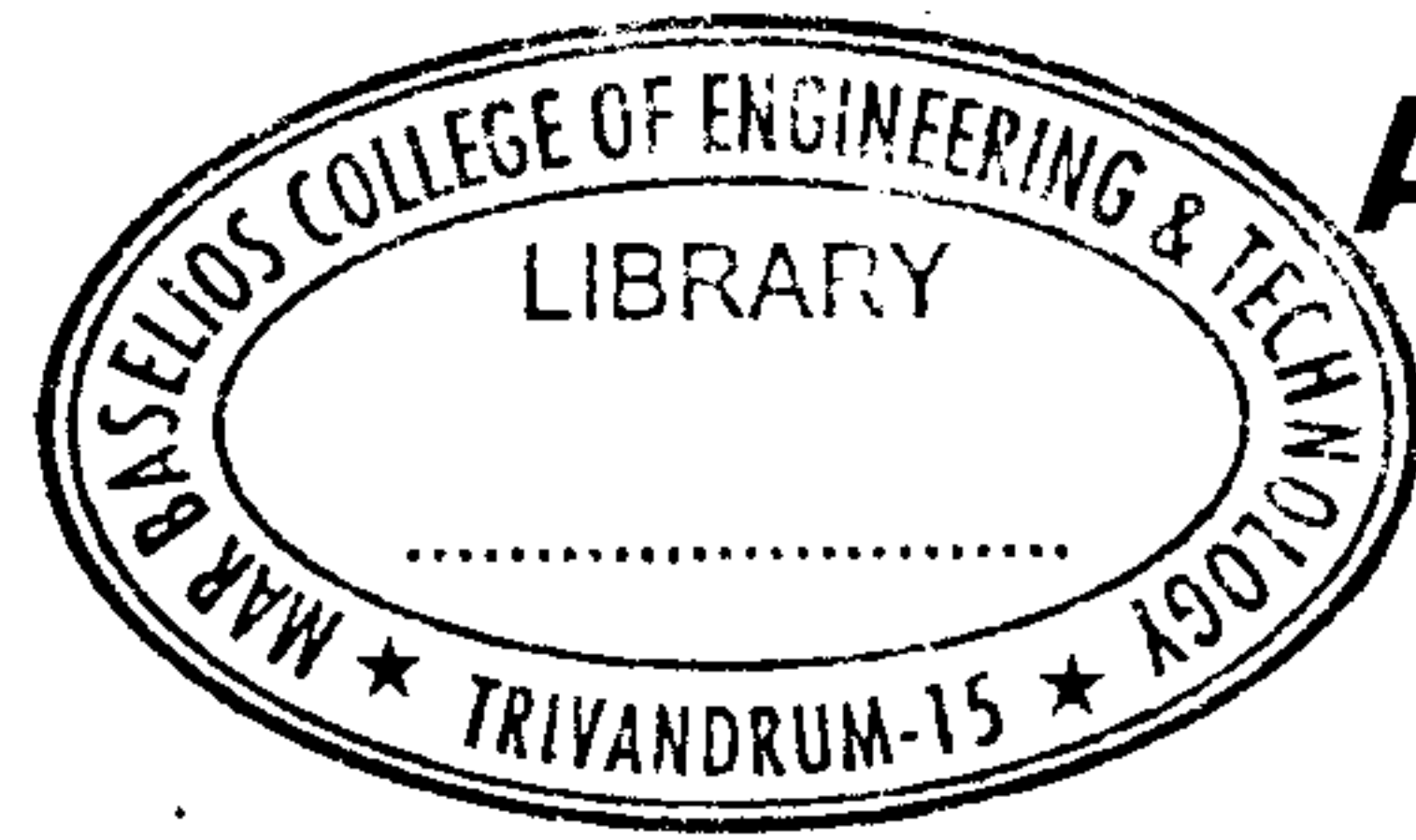




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**A – 6541**

Reg. No. : .....

Name : .....

**Fifth Semester B.Tech. Degree Examination, October 2016  
(2013 Scheme)  
13.504 : SYSTEMS PROGRAMMING (FR)**

Time : 3 Hours

Max. Marks : 100

**PART – A**

Answer **all** questions, **each** question carries **4** marks.

1. Write any two assembler directives used by SIC/XE. Write an SIC code to copy a 13 byte character string to another.
2. Could a one pass assembler produce a relocatable object program and handle external references ? Describe the processing logic that would be involved and identify any potential difficulties.
3. How linking loader differs from linkage editor ?
4. What is macro call and macro expansion ?
5. What is delay branching ? Give example. **(5×4=20 Marks)**

**PART – B**

Answer **one full** question from **each** Module.

**Module – I**

6. a) Explain the SIC machine architecture in detail. **10**  
b) Write and explain the sequence of code for SIC and SIC/XE to perform the task to add together the corresponding elements of ALPHA and BETA storing the results in the elements of GAMMA using indexing and looping operation. **10**

OR

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7. a) Compare SIC and SIC/XE architecture with respect to memory, instruction format, addressing modes and data formats. **10**
- b) Write and explain the sequence of code in SIC and SIC/XE to read 200 byte record from the input device using subroutine. **10**

### Module – II

8. a) Describe the various data structures used by an assembler. **5**
- b) How forward references are handled by multi pass assembler ? Illustrate with an example. **15**

OR

9. a) How an assembler calculates displacement for PC-relative and Base relative addressing mode ? **10**
- b) Write an algorithm for Pass 1 and Pass 2 of assembler and explain. **10**

### Module – III

10. a) Why linking loader require 2 passes to complete loading ? Explain the operations of linking loader. **15**
- b) Explain the various data structures used by the macro processor. **5**

OR

11. a) Describe the machine dependent loader features. **15**
- b) Describe the various records in MS-DOS linker. **5**

### Module – IV

12. a) Explain how the interactive debugging systems provide the testing and debugging to the programmers.. **10**
- b) Describe kernel structure of UNIX operating system. **10**

OR

13. a) Explain the various steps in editing and structure of an editor with neat diagram. **10**
- b) Describe the file system architecture of UNIX operating system. **10**

