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Reg. No.....

Name.....

INTEGRATED M.C.A. (IMCA) DEGREE EXAMINATION, JUNE 2026

Eighth Semester

IMCA 801—SYSTEM SOFTWARE AND AUTOMATA

(2019 Admissions—Supplementary/2017-2018 Admissions—Mercy Chance)

Time : Three Hours

Maximum : 75 Marks

Part A

*Answer any **ten** questions.*

Each question carries 3 marks.

1. What are context free grammars and languages ?
2. Define : “Turing Machines”.
3. What are the types of grammar ?
4. What is simple SIC assembler ?
5. Explain the difference between system software and application software.
6. Give the example for program blocks.
7. What are the functions of multi-pass assemblers ?
8. Describe the relocatable program for a standard SIC machine.
9. Write a note on bootstrap loaders.
10. Explain the generation of unique labels.
11. Mention the relationship with other parts of the system.
12. Narrate the typical editor structure with diagram.

(10 × 3 = 30)

Turn over





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Part B

*Answer **all** questions.*

Each question carries 9 marks.

13. (a) Illustrate the process of pumping lemma for regular sets.

Or

- (b) Dissect the computable languages and functions in Turing machines.

14. (a) Estimate the Simplified Instructional Computer (SIC) machine architecture.

Or

- (b) Influence the various types of instruction sets with example.

15. (a) Outline the program relocation in machine dependent assembler.

Or

- (b) Discuss the different types of literals in machine independent assembler.

16. (a) Draw and explain the design of an absolute loader.

Or

- (b) Interpret the basic concept involved in program linking.

17. (a) Conclude the concatenation of macro parameters.

Or

- (b) Elucidate the process of debugging functions and capabilities.

(5 × 9 = 45)

