

RAMAKRISHNA MISSION VIDYAMANDIRA

(Residential Autonomous College affiliated to University of Calcutta)

B.A./B.Sc. FIFTH SEMESTER EXAMINATION, DECEMBER 2019

THIRD YEAR [BATCH 2017-20]

COMPUTER SCIENCE [Honours]

Date : 16/12/2019

Time : 11 am – 2 pm

Paper : V [Gr-B]

Full Marks : 60

Unit - I

Answer **any one** question from question nos. 1 & 2:

[1×5]

1. Explain RIM and SIM.
2. What are the different addressing modes of 8086 microprocessor ?

Answer **any three** questions from question nos. 3 & 7:

[3×10]

3. a) Explain how ALE is used for selecting address and data.
b) Explain the hardware model of 8085.
c) What are the differences between microprocessor and microcontroller ? [4+4+2]
4. a) Draw the timing diagram of MVI A, 32H. Briefly describe.
b) The address capability of 8085 is 64 KB. Explain.
c) Mention the utility of various general purpose register. [4+3+3]
5. a) What are the temporary registers of 8085? Describe their roles.
b) Let at program memory location 4080, the instruction LDA 8000H (opcode 3A) while the accumulator content is 0FH. Describe execution of the instruction using timing diagram.
c) What do you mean by vectored interrupt ? [3+5+2]
6. a) Explain how instruction EI and DI are used to manage interrupts ?
b) How is RST 7.5 is different from other interrupt lines ?
c) What are the number of T- states required for successful and unsuccessful JMP respectively ? Explain your answer.
d) Explain the instruction : DAD D. [3+2+3+2]
7. a) Write an assembly language program in 8085 to find the average of five numbers stored in memory location.
b) A main memory is specified as $4K \times 8$. Indicate the number of words, word size and total capacity of this memory.
c) Explain instruction prefetching in 8086. [5+2+3]

Unit - II

Answer **any one** question from question nos. 8 & 9:

[1×5]

8. Write short note on object diagram.
9. Differentiate between program and software product.

Answer **any two** questions from question nos. 10 to 13:

[2×10]

10. a) What is the need of SRS document ?
b) What are the characteristics of a good SRS document ?
c) Describe how to select an appropriate life cycle model for a software project. [2+4+4]
11. a) Design a DFD for Railway reservation system upto level 2. State the assumptions you have made.
b) What do you mean by Function Point Metric?
c) What do you mean by white box testing? [6+2+2]

12. a) Draw a control flow graph for the following function named find_maximum. From the control flow graph, determine its cyclomatic complexity.

```
int find_maximum ( int i , int j , int k )  
{  
  int max ;  
  if ( i > j ) then  
    if ( i > k ) then  
      max = i ;  
    else max = k ;  
  else if ( j > k ) then  
    max = j ;  
  else max = k ;  
  return ( max ) ;  
}
```

b) 'Branch coverage based testing strategy is weaker than condition testing' – justify.

c) Explain the functions performed during feasibility study of a software life cycle model. [6+2+2]

13. Explain the following terms in brief.

i) Negative test case and its importance.

ii) Functional cohesion.

iii) Principle of abstraction.

iv) Data coupling.

[2.5×4]

—X—