



UNIVERSITY OF NORTH BENGAL
BCA Honours 5th Semester Examination, 2020

DSE1-BACHELOR OF COMPUTER APPLICATION (53)

Full Marks: 40

ASSIGNMENT

*The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.*

**The question paper contains DSE-E1 and DSE-E2 and DSE-E3
The candidates are required to answer any one from three courses.
Candidates should mention it clearly on the Answer Book.**

E1- MICROPROCESSOR

Attempt any two questions

20×2 = 40

1. (a) Draw and explain the pin diagram of an 8085 microprocessor. 10
(b) Discuss absolute and immediate addressing modes. 10
2. (a) Draw and explain the timing diagram of I/O read cycle of 8085 microprocessor. 10
(b) Discuss the various lines and their function that make up the status lines of an 8085 microprocessor. 10
3. Explain I/O mapped I/O and memory-mapped I/O with their benefits and drawbacks. 20
4. (a) Explain the different computer instruction formats. 10
(b) What are interrupts? Discuss any two interrupt lines of an 8085 microprocessor. 10
5. (a) Write a note on ALU. 10
(b) Discuss the register section of an 8085 microprocessor. 10

E2- INFORMATION SECURITY

Answer any two questions

20×2= 40

1. (a) What is information security? Explain the principles of information security. 10
(b) What are Security Services and Security Mechanisms? Briefly classify the categories of Security Services and Security Mechanisms. 10

2. (a) What is Digital Signature? Explain the purpose of digital signature. 10
(b) What is the difference between a 'digital signature', a 'digital certificate' and a 'digital signature certificate (DCS)'? 10
3. (a) What is an attack? Explain different types of attacks in information security? 10
(b) What are the different types of Hacker? Differentiate between Hackers and Crackers. 10
4. (a) What do you mean by cryptography? Explain Plain Text and Cipher Text? 10
(b) Explain Substitution Ciphers and Transpositions Cipher technique with an example. 10
5. (a) Who is a computer criminal? Briefly explain different types of computer criminals. 10
(b) What is a code? Briefly explain Malicious and Nonmalicious code. 10

E3- MODELING AND SIMULATION

Answer any *two* questions from the following

20×2= 40

1. (a) What is Model? What are the different types of Models? Give example for each. 2+8
(b) Define the queuing system. Explain elements of queuing system with examples. 2+8
2. (a) Differentiate between Dynamic physical models and Static physical models with suitable examples. 10
(b) Explain the steps in Simulation study. What are the limitations of simulation? 10
3. (a) Explain Markov Chains with examples and its applications. 10
(b) Define Physical Model. Explain Dynamic Physical Model with the help of suitable diagrams and expressions. 10
4. (a) What do you understand by Analog method of system simulation? Explain it with suitable examples. 3+7
(b) Describe different types of mathematical simulation models. Develop a mathematical model (differential equation) for any Dynamic system. 10
5. Write short note on the following: 5×4 = 20
(a) Phases of Simulation Study
(b) Feedback System
(c) Verification and Validation
(d) Random numbers and Pseudo-random numbers

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