



'সমানো মন্ত্র: সমিতি: সমানী'

UNIVERSITY OF NORTH BENGAL

BCA Honours 5th Semester Examination, 2022

DSE-P1-BACHELOR OF COMPUTER APPLICATION (53)

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.
Answer all questions with internal choices.*

**The question paper contains DSE53:E1 and DSE53:E2 and DSE53:E3.
The candidates are required to answer any *one* from *three* courses.
Candidates should mention it clearly on the Answer Book.**

DSE53:E1 (BCADSE1)

MICROPROCESSOR

1. Answer any *five* questions: 1×5 = 5
 - (a) What is ALE?
 - (b) Name any arithmetic instructions which do not affect the Carry Flag.
 - (c) Give an example of any two non-maskable interrupts.
 - (d) Why accumulator is called processor register?
 - (e) What do you understand by an n-bit microprocessor?
 - (f) What is device polling?
 - (g) What do you understand by speed of 2GHz of a microprocessor?
 - (h) What is the use of program counter?

2. Answer any *three* questions: 5×3 = 15
 - (a) Discuss the interrupt structure of 8085 microprocessor.
 - (b) Explain different stack organisation techniques.
 - (c) Write a program using ALP to find the maximum of three numbers.
 - (d) Explain the instruction execution cycle.
 - (e) Discuss the instruction set for arithmetic operations with respect to 8085 microprocessor.

3. Answer any *two* questions: 10×2 = 20
- (a) Explain the pin diagram of 8085 microprocessor.
 - (b) Discuss the working principle of DMA controller.
 - (c) Discuss different instruction formats of 8085 microprocessor.
 - (d) Explain different addressing modes supported by microprocessors with suitable examples.

DSE53:E2 (BCADSE2)

INFORMATION SECURITY

1. Answer any *five* questions: 1×5 = 5
- (a) Define Information Security.
 - (b) What are the characteristics of Information Security?
 - (c) What is E-mail Spoofing?
 - (d) What is Malware?
 - (e) What are Trojan horses?
 - (f) What are Trap doors?
 - (g) What is Salami attack?
 - (h) What is cryptography?
2. Answer any *three* questions: 5×3 = 15
- (a) Write differences between substitution techniques and transposition techniques.
 - (b) Differentiate Direct and Indirect attacks.
 - (c) What is Firewall? Discuss its functions.
 - (d) Describe DES (Data Encryption Standard) algorithm.
 - (e) Discuss the role of Digital Signature in data security.
3. Answer any *two* questions: 10×2 = 20
- (a) What is symmetric key cryptography? What are the challenges of symmetric key cryptography? List out various symmetric key algorithms and explain Caesar cipher in detail.
 - (b) Explain different types of attacks and threats on computer systems.
 - (c) Explain Intrusion Detection System (IDS) in detail with suitable example.
 - (d) Write short notes (any *two*):
 - (i) Network security
 - (ii) OS security
 - (iii) Database security.

DSE53:E3 (BCADSE3)

MODELLING AND SIMULATION

1. Answer any *five* questions: 1×5 = 5
- (a) What is simulation?
 - (b) What are feedback systems?
 - (c) Define co-variance and correlation.
 - (d) Explain AR-1 model.
 - (e) What are the types of simulations with respect to output analysis?
 - (f) Name the techniques for verification of simulation model?
 - (g) What is model reasonableness?
 - (h) What is the role of maximum density in random number generation?
2. Answer any *three* questions: 5×3 = 15
- (a) List a few advantages and disadvantages of simulation.
 - (b) What is model? Explain different types of model with suitable example.
 - (c) Discuss different principles used in modelling.
 - (d) Design a Telephone System simulation model using GPSS symbols.
 - (e) Explain the queuing system in simulation.
3. Answer any *two* questions: 10×2 = 20
- (a) Write short notes on (any *two*)
 - (i) Monte – Carlo methods
 - (ii) Numerical Computation techniques for continuous models
 - (iii) Distribute lag model.
 - (b) Discuss the simulation of any interactive real time system.
 - (c) Explain manual simulation using event scheduling with the help of a suitable example.
 - (d) Explain the properties of random number and its consequences. Also explain the process of generating Pseudo-random Numbers.

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