



'সমানো মন্ত্র: সমিতি: সমানী'

UNIVERSITY OF NORTH BENGAL

BCA Honours 5th Semester Examination, 2021

DSE-P1-BACHELOR OF COMPUTER APPLICATION (53)

Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

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

GROUP-A

Answer any *five* questions from the following

1×5 = 5

1. What is the function of the program counter register?
2. What is the status of an Intel 8085 MPU when $S_1 = 1$ and $S_2 = 1$?
3. Write the full form of USART.
4. Which method of memory interfacing suffers from bus contention?
5. What is the vector address for TRAP interrupt of 8085?
6. What do you mean by a pseudo-opcode?
7. Define polling.
8. What is the merit of having cache memory?

GROUP-B

Answer any *three* questions from the following

5×3 = 15

9. Discuss the need for having several types of addressing mode in a single microprocessor.
10. Draw and explain the timing diagram for the memory read cycle of any microprocessor.
11. Explain indirect and register-indirect addressing schemes with the help of suitable diagrams.

12. Discuss the merits and demerits of I/O-mapped I/O and memory-mapped I/O with respect to each other.
13. Write a note on co-processors.

GROUP-C

Answer any *two* questions from the following

10×2 = 20

14. Describe the lines that constitute the control bus of any microprocessor of your choice.
15. Discuss fully-decoded memory interfacing with the help of a suitable diagram.
16. Describe the internal architecture of any DMAC with the help of a block diagram.
17. Describe the internal architecture of any programmable peripheral interface (PPI).

DSE53:E2 (BCADSE2)

INFORMATION SECURITY

1. Answer any *five* questions: 1×5 = 5
 - (a) What is DoS?
 - (b) What is information security?
 - (c) What is the difference between attack and vulnerability?
 - (d) What is residual risk?
 - (e) What are viruses in context to information security?
 - (f) What are the objectives of ISO 17799?
 - (g) What is phishing?
 - (h) What is data Integrity?
2. Answer any *three* questions: 5×3 = 15
 - (a) Explain various types of attack on computer system.
 - (b) Explain the various components of an Information system.
 - (c) Discuss briefly about NIST model.
 - (d) Explain cryptanalysis. Discuss any one technique for it.
 - (e) What are the integrity and confidentiality of data?
3. Answer any *two* questions: 10×2 = 20
 - (a) With neat illustration explain Data Encryption Standard (DES) algorithm.
 - (b) Compare public key and private key cryptography with examples.
 - (c) How key management is done in case of public key and private key cryptography?
 - (d) Explain the different types of Intrusion Detection System (IDS) with their advantages and disadvantages.

DSE53:E3 (BCADSE3)
MODELLING AND SIMULATION

1. Answer any *five* questions: 1×5 = 5
- (a) What is Simulation?
 - (b) Define Markov Chain.
 - (c) What is a deterministic activity?
 - (d) When Simulation is not appropriate tool?
 - (e) What do you mean by discrete systems?
 - (f) What do you mean by continuous systems?
 - (g) What are Real Time Systems?
 - (h) List two simulation SW packages.
2. Answer any *three* questions: 5×3 = 15
- (a) What do you understand by interactive and feedback system in simulation? Explain.
 - (b) Write short notes on Cobweb Models.
 - (c) Explain Time Advance algorithm.
 - (d) Write short notes on verification of simulation models.
 - (e) Explain the uniform distribution with example.
3. Answer any *two* questions: 10×2 = 20
- (a) Discuss the Monte-Carlo Method with example.
 - (b) Describe different types of mathematical simulation models. Develop a mathematical model (differential equation) for any dynamic system.
 - (c) Explain discrete random variable and continuous random variable with example.
 - (d) Define congestion in a queuing system. Describe different types of components and characteristics of a queuing system.

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