'समानो मन्त्रः समितिः समानी'

UNIVERSITY OF NORTH BENGAL

BCA Honours 5th Semester [Special] Examination, 2022

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, 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 1×5 = 5

1. What are the various registers in 8085?
2. What is stack pointer?
3. What is meant by a Bus?
4. What is Tri-state Logic?
5. What are hardware and software interrupts?
6. Name five different Addressing modes.
7. What are the functions of an accumulator?
8. What is an Opcode?

GROUP-B

Answer any *three* questions 5×3 = 15

9. Define flags. Explain the microcontroller and microcomputer. 5
10. Explain the interrupt structure of an 8085 microprocessor. 5
11. Explain the direct and indirect addressing modes used with 8085 microprocessor. 5
12. Explain different general purpose registers 8085 microprocessor with their purpose of use. 5
13. Explain instruction formats with examples. 5

GROUP-C

Answer any *two* questions 10×2 = 20

14. Draw the register organization of 8085 microprocessor and explain its operation. 10

15. Draw and explain the internal architecture of 8085 microprocessor. 10

16. Draw and explain the pin diagram of an 8085 microprocessor and explain the purpose of each pin. 10

17. Discuss the interrupt structure of an 8085 microprocessor. 10

DSE53:E2 (BCADSE2)

INFORMATION SECURITY

GROUP-A

Answer any *five* questions 1×5 = 5

1. What is cyber security?
2. What are the principles of information security?
3. What are the types of security attacks?
4. What is a digital signature?
5. What is a hash function?
6. Compare between virus and worms.
7. Compare transposition ciphers with substitution chipher.
8. What is phishing?

GROUP-B

Answer any *three* questions 5×3 = 15

9. What is malware? Explain various types of viruses. 5

10. What is security mechanism? List and explain various security mechanisms? 5

11. What is an attack? Differentiate between Hackers and Crackers. 5

12. Explain different types of computer criminals. 5

13. What is a secure programs? Differentiate between Malicious and Non-Malicious Code. 5

GROUP-C

Answer any *two* questions 10×2 = 20

14. What is protection of OS? Explain memory and address protection in information security with regards to Operating System (OS). 10

15. Explain Cryptography. Compare public key and private key cryptography. List an algorithm for each. 10

16. Define Firewalls. Explain the different types of Intrusion Detection System (IDS) with their merits and demerits. 10

17. What is database security? Why need of database security? Explain main aspects of database security. 2+2+6

DSE53:E3 (BCADSE3)

MODELING AND SIMULATION

GROUP-A

Answer any *five* questions 1×5 = 5

1. What is system?
2. What are analytical models?
3. Where do you can use a flight simulator?
4. Which software can be used to build a simple model?
5. Write down an advantage of using a computer model.
6. What is an activity?
7. What is continuous system?
8. How can we offset the disadvantages of simulation?

GROUP-B

Answer any *three* questions 5×3 = 15

9. Explain discrete-event system simulation and steps in a simulation study.
10. Explain event scheduling algorithm.
11. With suitable flowchart describe two server queue.
12. Explain the use of arrays for list processing.
13. Discuss general purpose vs application oriented simulation packages.

GROUP-C

Answer any *two* questions 10×2 = 20

14. Explain the properties of random number and its consequences. Explain the generation of pseudo random numbers.
15. Explain different steps involved in the development of an input model. Explain data collection with example.
16. What are the types of simulation with respect to output analysis? Explain measure of performance and their estimation.
17. Explain the validation of input-output transformations of the model and the various techniques used?

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