



সম্মান্য মন্ত্র: সমিতি: সমানী

UNIVERSITY OF NORTH BENGAL

B.Sc. Honours 5th Semester Examination, 2022

CC11-COMPUTER SCIENCE (51)

INTERNET TECHNOLOGIES

Time Allotted: 2 Hours

Full Marks: 40

The figures in the margin indicate full marks.

GROUP-A

Answer any *five* questions from the following

1×5 = 5

- | | | |
|----|--|---|
| 1. | What does JSP stand for? | 1 |
| 2. | How to create a cookie in servlet? | 1 |
| 3. | Can a JSP be called using a Servlet? | 1 |
| 4. | What is the difference between servlets and JSP? | 1 |
| 5. | What is JDBC statement? | 1 |
| 6. | What is the full form of JDBC? | 1 |
| 7. | What is the full form of JDK? | 1 |
| 8. | How many JDBC product components are provided by Java soft as part of the JDK? | 1 |

GROUP-B

Answer any *three* questions from the following

5×3 = 15

- | | | |
|-----|---|---|
| 9. | Write the advantages of JDBC API. | 5 |
| 10. | What is an event? How can we handle events in JavaScript? | 5 |
| 11. | What is JavaBean? Write the advantages of JavaBean? | 5 |
| 12. | Explain Servlet chaining. Describe with a code fragment how servlet chaining is achieved. | 5 |
| 13. | Write a JavaScript to find the square root of a given number. Accept number through HTML. | 5 |

GROUP-C

Answer any *two* questions from the following

10×2 = 20

- | | | |
|-----|---|----|
| 14. | Explain the different types of JDBC drivers and briefly list their advantages and disadvantages. | 10 |
| 15. | What are JavaScript Data Types? Explain with examples. | 10 |
| 16. | What is JDBC? Explain the JDBC architecture. | 10 |
| 17. | List some features of JavaScript. What are the key differences between Java and JavaScript? Write a simple program in JavaScript to validate an email id. | 10 |

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B.Sc. Honours 5th Semester Examination, 2022

DSE-P1-COMPUTER SCIENCE (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

MICROPROCESSOR

GROUP-A

Answer any five questions

1×5 = 5

1. What are the basic units of a microprocessor?
2. Define opcode.
3. List any two applications of a microprocessor based system.
4. What is a program counter?
5. Define DAD instruction.
6. What is an assembler?
7. What is an address bus?
8. List one instruction having implicit mode of addressing.

GROUP-B

Answer any three questions

5×3 = 15

9. Explain the different lines that constitute the control bus of an 8085 microprocessor.
10. Differentiate between direct and indirect mode of addressing. How many references to the memory are needed in each case?
11. Draw and explain the timing diagram of the memory read cycle in Intel 8085.
12. List and explain the different data transfer instructions available in 8085 assembly language programming.
13. What are the different types of interrupts present in Intel 8085? Explain.

GROUP-C

Answer any two questions

10×2 = 20

14. Draw and explain the internal architecture of Intel 8085.
15. What are registers? What is the need of having registers? Explain the different registers available in 8085.
16. What are addressing modes? Explain the different addressing modes available in a typical microprocessor.
17. Describe the different modes of data transfer in a microprocessor.

DSE53-E2

INFORMATION SECURITY

GROUP-A

Answer any five questions of the following

1×5 = 5

- | | | |
|----|---|---|
| 1. | What is Cyber Security? | 1 |
| 2. | Who had coined the term "Cyberspace"? | 1 |
| 3. | Name a type of peer-to-peer cyber crime. | 1 |
| 4. | What is the existence of weakness in a system or network? | 1 |
| 5. | What can diminish the chance of data leakage? | 1 |
| 6. | State whether true or false: Data encryption is primarily used to ensure confidentiality. | 1 |
| 7. | What does EDR stand for? | 1 |
| 8. | In which category does compromising confidential information fall? | 1 |

GROUP-B

Answer any three questions from the following

5×3 = 15

- | | | |
|-----|--|---|
| 9. | Explain the triple DES scheme with two keys and write about proposed attacks on 3 DES. | 5 |
| 10. | Give the steps of RSA algorithm. | 5 |
| 11. | What are the key components of internet mail architecture? | 5 |
| 12. | What are the types of firewalls? | 5 |
| 13. | What is the need for information security? | 5 |

GROUP-C

Answer any two questions from the following

10×2 = 20

- | | | |
|-----|---|-------|
| 14. | What is public key cryptography? What are the principal ingredients of a public key cryptosystem? Explain the steps followed in public key cryptography algorithms. | 2+3+5 |
|-----|---|-------|

- | | | |
|-----|--|----|
| 15. | What is the difference between a monoalphabetic cipher and a polyalphabetic cipher? Explain in detail with examples. | 10 |
| 16. | What types of attacks are addressed by message and how? | 10 |
| 17. | Describe the critical characteristics of information. How are they used in computer security? | 10 |

DSE53-E3

MODELLING AND SIMULATION

GROUP-A

Answer any five questions from the following

1×5 = 5

1. What is Simulation?
2. When is Simulation the appropriate tool?
3. What is the need of system modelling?
4. Define feedback system.
5. What is cost analysis?
6. Why do we need system modelling?
7. What is the performance measure of most interest for information system?
8. What is a random variable?

GROUP-B

Answer any three questions of the following

5×3 = 15

- | | | |
|-----|--|---|
| 9. | Explain the terms:
(a) entity, (b) attribute, (c) activity,
(d) event, and (e) state in the system simulation context. | 5 |
| 10. | Explain the concept of Discrete-Event Simulation. | 5 |
| 11. | Explain identifying the distribution of data with example. | 5 |
| 12. | How model can be build verification and validate? Explain with diagram. | 5 |
| 13. | Explain stochastic nature of output data with example. | 5 |

GROUP-C

Answer any two questions from the following

10×2 = 20

- | | | |
|-----|---|----|
| 14. | Explain the characteristics of queuing systems. List different queuing notations. | 10 |
| 15. | Define discrete and continuous random variables. Explain the Binomial and Poisson distribution. | |

- | | | |
|-----|--|----|
| 16. | Explain the major concepts in discrete event simulation. Write the flowchart for arrival and departure events. | 10 |
| 17. | Explain the concepts of point estimation and interval estimation. | 10 |

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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

- What is ALE?
- Name any arithmetic instructions which do not affect the Carry Flag.
- Give an example of any two non-maskable interrupts.
- Why accumulator is called processor register?
- What do you understand by an n-bit microprocessor?
- What is device polling?
- What do you understand by speed of 2GHz of a microprocessor?
- What is the use of program counter?

2. Answer any *three* questions:

5×3 = 15

- Discuss the interrupt structure of 8085 microprocessor.
- Explain different stack organisation techniques.
- Write a program using ALP to find the maximum of three numbers.
- Explain the instruction execution cycle.
- Discuss the instruction set for arithmetic operations with respect to 8085 microprocessor.



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DSE53:E1 (BCADSE1)

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- Explain the instruction execution cycle.
- 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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CC11-BACHELOR OF COMPUTER APPLICATION (51)

INTERNET TECHNOLOGIES

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GROUP-A

Answer any *five* questions

1×5 = 5

1. What is the function of an operator?
2. What is an event?
3. Expand HTTP.
4. What is a JAR file?
5. Expand JDBC.
6. What is a variable?
7. What are methods?
8. What is the function of JavaScript in website designing?

GROUP-B

Answer any *three* questions

5×3 = 15

9. What are functions? How to create and call functions?
10. Discuss the significance of GET and POST.
11. Discuss different levels of heading in HTML.
12. Explain pseudo class selector in CSS with the help of an example.
13. Explain basis table tags with different attributes.

GROUP-C

Answer any *two* questions

10×2 = 20

- 14.(a) Explain various data types used in JavaScript.
(b) Write a program in JavaScript to find out the factorial of a number.
15. Explain MIME, WWW, DNS and HTTP with suitable example.
16. Explain the use of Array and ArrayList class with the help of suitable examples.
17. Explain the significance of JDBC. Explain how to establish a connection and work with interface using JDBC. Give examples.

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