বিদ্যাসাগর বিশ্ববিদ্যালয়

VIDYASAGAR UNIVERSITY

B.Sc. Honours Examination 2021

(CBCS)

4th Semester

ELECTRONICS

PAPER—SEC2T

Full Marks : 40

Time : 2 Hours

The figures in the right-hand margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

THEORY : SEC2T (INTERNET AND JAVA PROGRAMMING)

Group – A

Answer any *two* questions. 2×15

1. What are internet and intranet ? What are differences between WWW and internet? What are the major functions of ISP ? 5+5+5

2. What are byte codes ? How do you define the term machine code ? How are byte codes differ from native codes ? What are the typical

responsibilities of JVM ? Write a JAVA program to check whether a number is prime or not. 2+2+3+3+5

3. What is a token ? List the various types of tokens supported by Java. What is type casting ? What is implicit and explicit type casting in Java ? Write a JAVA program to accept a number from the user and print the count of digits it contains. 2+2+2+4+5

4. Differentiate between a class and an object ? What are constructors ? Explain its utility with a simple program. What does constructor-overloading mean? Explain with an example. 4+2+3+2+4

Group – B

Answer any *one* question. 1×10

5. What is inheritance and how does it help in achieving reusability ? What is method of overriding ? Explain the working principle of method overriding. 5+2+3

6. What is the use of the keyword super ? Is it absolutely necessary to use super ? Write short notes on: Runtime polymorphism in Java. 5+5

THEORY : SEC2T (PROGRAMMING WITH MATLAB)

Group – A

Answer any *two* questions. 2×15

1. Write a program for MATLAB to plot $y = e^{2x}$ for $0 \leq x \leq 5$. 15

2. Explain if end structure in MATLAB. Write a program for MATLAB to flip an array and multiply each element of the array with number 5. 8+7

3. What are clc and clear all command in MATLAB ? What is simulink ? (5+5)+5

4. Explain the format of ode 23 built in function in MATLAB. How ode 45 differs with it ? 9+6

Group – B

Answer any *one* question. 1×10

5. Write a program for MATLAB to find the largest and smallest numbers from an array of 10 numbers. 5+5

6. Explain the 'break' and 'continue' commands in MATLAB. Define continuous and discrete time signals can be plotted in MATLAB ? (2+2)+6

THEORY : SEC2T (NETWORKING AND MOBILE COMMUNICATIONS)

Group – A

Answer any *two* questions. 2×15

1. With a proper block diagram to discuss the GSM system.

2. What are different layers used in TCP/IP networking ? Briefly discuss each of the layer. 5+10

3. Write short notes on : 7½×2

(i) LAN & WAN

(ii) IPV4 & IPV6

4. What is the concept of frequency reuse in case of wireless technology? What is the difference between soft handoff and hard handoff technology? Differentiate between circuit-switched and packet-switched network. 6+3+6

Group – B

Answer any *one* question. 1×10

5. What are the different types of transmission media used in data communication? Briefly discuss about them. 3+7

6. Mention different types of blue-tooth network. What is the concept of frequency reverse in case of wireless technology? 5+5

THEORY : SEC2T (CIRCUIT MODELLING USING PSPICE)

Group – A

Answer any *two* questions. 2×15

1. Briefly introduce PSPICE software. Name different types of SPICE. Mention various types of analyses. What are the limitation of PSPICE? Write different platforms of PSPICE. 3+3+3+3+3

2. Write different specifications of PSPICE that are used for the analysis of a circuit. Write three output commands of PSPICE. 10+5

3. Write a program for transient response of an RLC series circuit with a sinusoidal input voltage with a proper circuit diagram. Give output waveform. 10+5

4. Write PSPICE commands for half wave rectifier circuit with RL load. Give output waveform. 10+5

Group – B

Answer any *one* question. 1×10

5. Model using PSPICE the DC analysis of a MOSFET. 10

6. Model using PSPICE the inverting OP-AMP for a DC input. 10