UNIVERSITY OF NORTH BENGAL

B.Sc. Honours 3rd Semester Examination, 2020

SEC1 (P1)-COMPUTER SCIENCE

Full Marks: 60

ASSIGNMENT

The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.

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

SEC-E1

DIGITAL ELECTRONICS AND SYSTEM MAINTENANCE

Answer any *three* questions from the following $20\times3 = 60$

1. (a) Simplify the expression $AB + \overline{AC} + A\overline{B}C(AB + C)$

   (b) Simplify the expression $Y = m_1 + m_5 + m_{10} + m_{11} + m_{12} + m_{13} + m_{15}$ using the K-map method.

   (c) Express the function $Y = A + \overline{B}C$ in (i) canonical SOP and (ii) canonical POS form.　　5+10+5

2. (a) Construct and explain a 4-bit Parallel ADDER/SUBTRACTOR.

   (b) Implement a 16- to-1 multiplexer using two 8-to-1 multiplexer ICs(74151).　　10+10

3. (a) Construct and explain a Octal-to-Binary Encoder.　　10+10

   (b) Construct and explain a 2-bit magnitude Comparator.

4. (a) What is race-around condition? How it can be avoided in Master-Slave J-K flip-flop?　　10+10

   (b) Construct and explain S-R flip-flop.

5. Construct and explain a Serial-in-Serial-out Shift Register. 20

6. Write short note on: 5×4=20
    (i)   System Software
    (ii) PLA
    (iii) EPROM
    (iv) Modem.

SEC-E2

WEBSITE DESIGN WITH HTML AND PHP

Answer any *three* questions from the following 20×3 = 60

1. (a) Discuss Markup Languages and HTML. Explain the need and use of Markup Language. 10

    (b) Explain the function of Head, the Body, Colors, Attributes, Lists, ordered and unordered. 10

2. (a) Explain Relative Links and Absolute Links. What are Link Attributes? How do you use the ID Attribute to Link within a Document? 5+2+3

    (b) Write down the HTML code to put an Image on a Page. Discuss the method of Using Images as Links and putting an Image in the Background of a webpage. 5+5

3. (a) Explain the method to create a Table in HTML. Write down the HTML code to create a table. 5+5

    (b) Explain XML and its Goals and also explain XML Structure and Syntax. 10

4. Explain document classes and Rules in XML, Scripting XML, Linking with XML and XML as Data. 20

5. Explain the significance of PHP. Discuss inventions and versions, scope, important tools and software requirements of PHP. Also explain PHP variables and constants and Types of data in PHP. 5+7+8

6. Explain PHP conditional events and Looping statements. 20

SEC-E3

PYTHON PROGRAMMING

Answer any *three* questions from the following 20×3 = 60

1. (a) Design a python program to calculate area of triangle and circle and print the result. 10

(b) What is an algorithm? Discuss the characteristic of an algorithm. Write some advantage of algorithm. Design an algorithm to find the area and perimeter of rectangle. 10

2. (a) Define flowchart. Design a flowchart to find the factorial of any number. 10

(b) What do you mean by 'error' in programming? Discuss the different types of error that occurs in programming with example. 10

3. (a) Design a python program to find the second largest number in a list. 10

(b) Write a python program to check whether a number is prime or not. 10

4. What do you mean by Programming Methodologies? Discuss the different types of programming methodologies with their advantages and disadvantages. 20

5. What is meant by Problem Solving? Discuss the different types of problem solving techniques in detail. 20

6. (a) Write a programme to find the first 'n' terms of Fibonacci series. 10

(b) What is Python? Discuss the different features of Python. 10

——×——