'समानो मन्त्रः समितिः समानी'

UNIVERSITY OF NORTH BENGAL

BCA Honours 3rd Semester Examination, 2023

SEC1-P1-BACHELOR OF COMPUTER APPLICATION (35)

Time Allotted: 2 Hours | Full Marks: 60

The figures in the margin indicate full marks.
All symbols are of usual significance.

The question paper contains SEC-35:E1, SEC-35:E2 and SEC-35:E3.
The candidates are required to answer any *one* from *three* courses.
Candidates should mention it clearly on the Answer Book.

SEC-35:E1

ARDUINO SENSORS

GROUP-A

Answer any *four* of the following 3×4 = 12

1. Discuss different components of Arduino Project.
2. Discuss the function of timers in Arduino.
3. How can you create an LED blink program for Arduino?
4. What is an IDE (Integrated Development Environment)? Which one would you use when working with Arduino?
5. What are some commonly used libraries in Arduino?
6. What is the purpose of PWM in Arduino?

GROUP-B

Answer any *four* of the following 6×4 = 24

7. Explain the functional blocks of Arduino with the help of an example.
8. Explain Arduino sketch structure.
9. Explain the working principle of IR Sensor.
10. Discuss different pins used to wire your Arduino board to the LCD screen.
11. Explain interfacing different sensors with Arduino Sensor.
12. How do you connect HC-SR04 with Arduino?

GROUP-C

Answer any *two* of the following 12×2 = 24

13. Explain Arduino technology architecture and its advantages.

14. Explain different types of operators used in Arduino.
15. Explain different types of control structures used in Arduino with the help of examples.
16. Explain different types of pinouts used in IR sensors and their functions.

SEC-35:E2

WEBSITE DESIGN WITH HTML AND PHP

GROUP-A

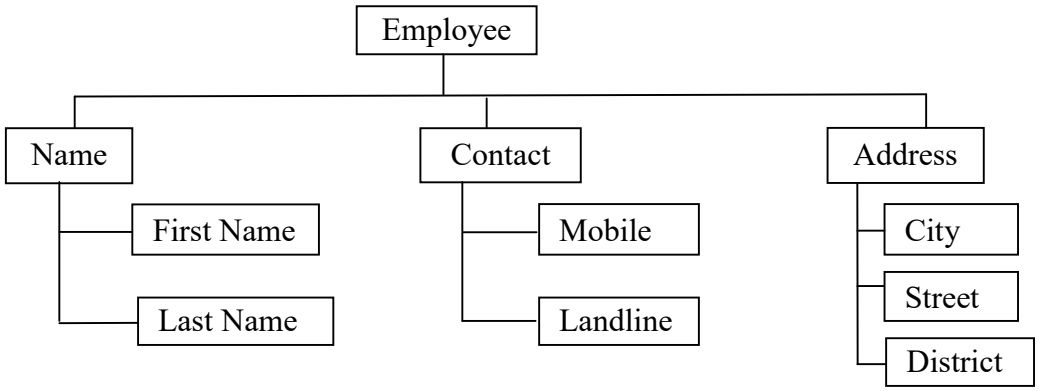
Answer any *four* questions from the following 3×4 = 12

1. What is the use of a markup language?
2. What are link attributes?
3. Discuss the syntax of XML.
4. What is the function of PHP?
5. What is the function of MOD operator?
6. What is the use of preg_match()?

GROUP-B

Answer any *four* questions from the following 6×4 = 24

7. Describe the tags and attributes for a form in HTML document.
8. Write the HTML code to generate the following output.
    - FOHSS
        - BCA
            1. IoT
    - FOM
        - BIM
            1. IoT
9. Write a well formed XML document and validate with the use of XML schema:



10. Explain different ways of positioning elements on the Webpages.
11. Explain the basic table tags with different attributes.
12. Explain different levels of heading in HTML.

GROUP-C

Answer any *two* questions from the following 12×2 = 24

13. Explain different types of operators found in PHP with the help of examples.
14. Explain different types of string manipulation operations with the help of examples.
15. What is a form? What are the major attributes of the form? Explain any six form components with example. 2+4+6
16. Write short notes on any ***three*** of the following: 4×3 = 12
    (a) Scope of Function
    (b) PHP Conditional Events
    (c) XSL
    (d) PHP variables.

SEC-35:E3

PYTHON PROGRAMMING

Answer any *four* questions from the following 3×4 = 12

1. What is Python programming? Give the features of Python.
2. What is Python interpreter? What is the difference between intermediate mode and script mode?
3. What is meant by value in Python? List the standard data types in Python.
4. Differentiate between scope and lifetime of a variable in Python.
5. What is tuples? What is the difference between list and tuples?
6. What is keywords in Python? What are the rules for naming a variable in Python?

Answer any *four* questions from the following 6×4 = 24

7. What is Dictionaries? Explain with example.
8. What is an algorithm? What are the properties of algorithm?
9. What is a flowchart? What are the advantages of using a flowchart?
10. Explain about Python operators precedence with example.
11. Explain indentation, atoms, identifiers, keywords, literals and statements available in Python.
12. Write a program in Python to convert temperature from Celsius to Fahrenheit.

Answer any *two* questions from the following 12×2 = 24

13. What is a Global variable? Explain Abstract Data Types and Classes with example.
14. What are the different loop control statements available in Python? Explain with an example.
15. Python is a powerful language. Which features of the language make it powerful? Explain the structure of Python programming.
16. Describe Arithmetic Operators, Boolean Operators, Relational Operators, Bitwise Operators and Bitwise Operators in detail with examples.

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