UNIVERSITY OF NORTH BENGAL
BCA Honours 3rd Semester Examination, 2022

SEC1-P1-BACHELOR OF COMPUTER APPLICATION (35)

Time Allotted: 2 Hours   Full Marks: 60

The figures in the margin indicate full marks.
Answer all questions with internal choices.

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

1. Answer any *four* questions: 3×4 = 12
   (a) What is Arduino? Explain briefly.
   (b) Write short note on IR Sensor.
   (c) What is the use of pinMode() function? Explain briefly.
   (d) What is the use of analogWrite() function? Explain briefly.
   (e) What is the use of constrain() function? Explain briefly.
   (f) What is the use of delay() function? Explain briefly.

2. Answer any *four* questions: 6×4 = 24
   (a) Arduino IDE consists of how many primary functions? Explain the purpose and function of these functions briefly.
   (b) What is the microcontroller used in Arduino UNO? Briefly discuss the features of the microcontroller used in Arduino UNO.
   (c) Explain the different data.
   (d) Explain the working of HC-SR04.
   (e) List and explain the various Arduino operators.
   (f) Discuss the use of delay() function with example.

3. Answer any *two* questions: 12×2 = 24
   (a) Explain the Arduino Architecture in detail with its block diagram.
   (b) Explain the Arduino Control structure with suitable example.
   (c) Draw sketch and explain the typical water level monitoring using HC-SR04.
   (d) Draw sketch and explain the typical blinking LED program with delay function.

SEC-35:E2
WEBSITE DESIGN WITH HTML AND PHP

1. Answer any *four* questions: 3×4 = 12
   (a) What is the purpose of HTML?
   (b) What is scripting languages? Give example.

(c) What is the function of XML?

(d) What is the use of PHP in web designing?

(e) How to embed PHP in HTML?

(f) Differentiate between XSL and CSS.

2. Answer any *four* questions: 6×4 = 24

(a) Differentiate between GET and POST methods with example.

(b) Briefly discuss about internal data types in PHP.

(c) Explain different string functions in PHP.

(d) Explain the different attributes of table tag in HTML with example.

(e) Explain different Operators in PHP with examples.

(f) Write a PHP Script for counting number of words in a string.

3. Answer any *two* questions: 12×2 = 24

(a) What is a user-defined function? Write different types of user-defined functions and write PHP code to explain any one function.

(b) Explain in detail about control structures in PHP with suitable example.

(c) Write a PHP script to read the contents from a file and write in another file.

(d) Write a program to create Index Based and Associative Arrays in PHP.

SEC-35:E3
PYTHON PROGRAMMING

1. Answer any *four* questions: 3×4 = 12

(a) Explain different types of *errors* in programming.

(b) What is tuple? What is the difference between list and tuple?

(c) What is default argument of a function? Explain with example.

(d) Differentiate between break, continue and pass statements.

(e) Explain the role of Python Interpreter.

(f) What are atoms and identifiers in Python?

2. Answer any *four* questions: 6×4 = 24

(a) What is an algorithm? Discuss the characteristic of an algorithm.

(b) Discuss the different features of Python in brief.

(c) Design a python program to check whether a number is palindrome or not.

(d) Discuss the features of lists in python.

(e) Compare between Top-Down and Bottom-Up programming approaches.

(f) What are Python's dictionaries? Give example.

3. Answer any *two* questions: 12×2 = 24

(a) Explain the data types in python with suitable example.

(b) Write a program to create class and objects in python. Use constructors and destructors.

(c) Write a program in Python to multiply two matrices without using library function.

(d) Design flowchart to generate first *n* terms of Fibonacci series. Further write algorithm for finding the factorial of a number.

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