



'সমানো মন্ত্র: সমিতি: সমানী'

UNIVERSITY OF NORTH BENGAL

BCA Honours 3rd Semester Examination, 2021

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:E-1, SEC-35:E-2 and SEC-35:E-3.
The candidates are required to answer any *one* from *three* courses.
Candidates should mention it clearly on the Answer Book.**

SEC-35:E-1

ARDUINO SENSORS

1. Answer any **four** questions from the following: 3×4 = 12
- What is Arduino? Explain briefly.
 - What are the advantages and limitations of Arduino?
 - Write short note in IR Sensor.
 - What will be the output of the following arduino code? Justify your answer.

```
void main() {  
    int a = 0;  
    double d = 10.21;  
    printf(“%lu”, sizeof(a + d));  
    void loop() { //Do nothing... }
```
 - What is the use of pinMode() function. Explain briefly.
 - What is the use of analogRead() function. Explain briefly.
2. Answer any **four** questions from the following: 6×4 = 24
- Arduino IDE consists of how many primary functions? Explain the purpose and function of these functions briefly.
 - What is the microcontroller used in Arduino UNO? Briefly discuss the features of the microcontroller used in Arduino UNO.
 - Explain the working of HC-SR04.
 - List and explain the various Arduino Operators.
 - Discuss the use of delay() function with example.

3. Answer any *two* questions from the following: 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) Explain how to interface the LCD display with Arduino. Draw the suitable diagram if needed.

SEC-35:E-2

WEBSITE DESIGN WITH HTML AND PHP

GROUP-A

Answer any *four* questions from the following

3×4 = 12

- 1. What is the use of Head and Body in HTML?
- 2. Discuss the goals of XML.
- 3. What is XSL?
- 4. What is scope of a variable?
- 5. How do you link an image to a web page?
- 6. What is the significance of PHP?

GROUP-B

Answer any *four* questions from the following

6×4 = 24

- 7. Explain ordered and unordered lists with the help of example.
- 8. Discuss the structure and syntax of XML.
- 9. With the help of an example discuss the method of creating and filling up information in a table.
- 10. Discuss CSS with the help of an example.
- 11. Explain different attributes of a form.
- 12. Discuss GET and POST method with the help of examples.

GROUP-C

Answer any *two* questions from the following

12×2 = 24

- 13. Discuss different type of operators used in PHP with the help of examples.
- 14. Explain different conditional statements used in PHP.

15. Discuss variables and constant used in PHP. What are the different data types used in PHP?
16. Write short notes on the following:
- (a) Different Markup Languages
 - (b) Links

SEC-35:E-3
PYTHON PROGRAMMING

1. Answer any *four* questions: 3×4 = 12
- (a) How to create a destructor in Python? Give an example.
 - (b) What is the difference between compiled and interpreted languages?
 - (c) What are mutable and immutable types?
 - (d) Define the scope and lifetime of a variable in Python.
 - (e) What is cloning of List? Explain briefly.
 - (f) Define anonymous function.
2. Answer any *four* questions: 6×4 = 24
- (a) What is Python? Describe its features and applications?
 - (b) Python variables do not have specific types. Justify this statement with the help of an example.
 - (c) Write a Python program to check if a 3 digit number is Armstrong number or not.
 - (d) Explain the Identifiers, Keywords, Statements, Expressions and Variables in Python programming language with examples.
 - (e) Write about Errors and Exception Handling in Python programming?
 - (f) Discuss about Python operators precedence with example.
3. Answer any *two* questions: 12×2 = 24
- (a) What is operator overloading in Python? Explain with the help of a suitable example.
 - (b) Describe Arithmetic Operators, Assignment Operators, Comparison Operators, Logical Operators and Bitwise Operators in detail with examples.
 - (c) What are different types of inheritance supported by Python? Explain with suitable example.
 - (d) What are the different loop control statements available in Python? Explain with suitable examples.

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