UNIVERSITY OF NORTH BENGAL

BCA Honours 6th Semester Examination, 2021

DSE10/11/12-BACHELOR OF COMPUTER APPLICATION (64)

Full Marks: 40

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 DSE64:E1 and DSE64:E2 and DSE64:E3.
The candidates are required to answer any *one* from *three* courses.
Candidates should mention it clearly on the Answer Book.

DSE64:E1

MACHINE LEARNING

Answer any *two* questions from the following   20×2 = 40

1. (a) What is Machine Learning? Discuss various Applications of Machine Learning.   10+10

   (b) What are the essential components of a machine learning system?

2.   Briefly discuss the difference between supervised learning and unsupervised learning with suitable examples.   20

3.   What is regression? How will you forecast using regression analysis?   20

4.   What is the difference between logistic regression and linear regression? Explain with examples.   20

DSE64:E2

SYSTEM PROGRAMMING

Answer any *two* questions from the following   20×2 = 40

1. (a) Generate any three Intermediate representations for the following expression: 8

   $$A = (B /C) * [(C + D) * B] * (E - C - 100)$$

   (b) What is the difference between an open subroutine and a closed subroutine?   2

   (c) What are the different code optimization techniques?   8

   (d) Differentiate between a compiler and an interpreter.   2

2. (a) Explain analysis and synthesis phase of a compiler. 7

   (b) Define context free grammar with examples? 3

   (c) What is dynamic binding and overlay? 2

   (d) Write a short note on Syntax directed translation schemes, mentioning the rules for translation. 8

3. (a) What do you mean by static linking? 2

   (b) Discuss the flow of control and lexical substitution during macro expansion. 6

   (c) Differentiate between: 12

   (i) Linkers and Loaders

   (ii) Dynamic and static binding

   (iii) Scanning and parsing.

4. (a) Explain the SLR parser with its parsing algorithm. 10

   (b) What is a token? Give examples. 2

   (c) Give the database specification of pass 1 and pass 2 of a two-pass assembler. 8

DSE64:E3

CLOUD COMPUTING

Answer any *two* questions from the following $20{\times}2 = 40$

1. Explain the service models of distributed and cloud computing in detail. 20

2. (a) Briefly discuss the NIST cloud computing reference architecture. 15

   (b) List the advantages and disadvantages of cloud computing. 5

3. List and discuss the principles for designing private, public and hybrid clouds. 20

4. Discuss about Amazon AWS with cloud software environments. 20

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