'समानो मन्त्रः समितिः समानी'

UNIVERSITY OF NORTH BENGAL

B.Sc. Honours 6th Semester Examination, 2022

DSE-P4-COMPUTER SCIENCE (64)

Time Allotted: 2 Hours | Full Marks: 40

The figures in the margin indicate full marks.

The question paper contains DSE64-E1, 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

1. Answer any ***five*** questions: 1×5 = 5

   (a) What is Machine Learning? 1

   (b) Can we say machine learning is a subset of Artificial Intelligence? 1

   (c) Write two areas of application of machine learning with example. 1

   (d) What is Training set in Supervised Learning? 1

   (e) What is Linear Regression? 1

   (f) What do you mean by vectorization? 1

   (g) Give an example of unsupervised learning from our life-experience. 1

   (h) Logistic regression algorithm is used to solve what type of problems? 1

2. Answer any ***three*** questions: 5×3 = 15

   (a) Write a short note on Naive Bayes Classifier. 5

   (b) Discuss different key elements of machine learning. 5

   (c) Discuss 'matrix addition' with an example. 5

   (d) Write a short note on Linear Regression. 5

   (e) Why graphical representation of data through data plotting is important? 5

3. Answer any ***two*** questions: 10×2 = 20

   (a) Differentiate between supervised and unsupervised learning. 10

   (b) Discuss on application of machine learning in different fields with example. 10

   (c) Differentiate Linear Regression and Logistic Regression. 10

   (d) What is vectorization? How it is used to speed up Program Code? 10

DSE64-E2

SYSTEM PROGRAMMING

1. Answer any ***five*** questions: 1×5 = 5

   (a) What is an Assembler?

   (b) What is Linker?

   (c) What do you mean by bootstrapping in compiler design?

   (d) What is code optimization?

   (e) Define a symbol table.

   (f) What is the need of a language translator in a computer system?

   (g) What is debugging?

   (h) What is the main task of Lexical Analyzer?

2. Answer any ***three*** questions: 5×3 = 15

   (a) Write a short note on intermediate code generation phase of a compiler.

   (b) Explain different Linking scheme.

   (c) Differentiate compiler and interpreter.

   (d) Differentiate one pass and two pass assemblers.

   (e) Write a short note on LR parser.

3. Answer any ***two*** questions: 10×2 = 20

   (a) Discuss any three phases of a compiler with example. 10

   (b) Describe Two-Pass Assembler with proper diagram. 10

   (c) Write the advantage of dynamic-linking. What is absolute loader? Write its algorithm. 3+2+5

   (d) What do you mean by token? Discuss on specification and recognition of tokens. 2+8

DSE64-E3

CLOUD COMPUTING

GROUP-A

Answer any *five* from following 1×5 = 5

1. Define cloud computing. 1

2. Differentiate private cloud and public cloud. 1

3. What is the significance of a Virtual Machine? 1

4. What is cluster computing? 1

5. What is Utility Computing? 1

6. What are the design challenges in cloud architecture? 1

7. What is client-server architecture? 1

8. What is a distributed file system? 1

GROUP-B

Answer any *three* from following 5×3 = 15

9. Why is it necessary to prefer cloud computing over on-premise computing? Explain. 5

10. Discuss about the limitations of cloud computing. 5

11. Write short note on "Google App Engine". 5

12. Write short note on "Microsoft Azure". 5

13. Discuss about Hybrid Cloud. 5

GROUP-C

Answer any *two* from following 10×2 = 20

14. Explain major deployment models for cloud computing with a neat diagram. Discuss cloud Governance. 7+3

15. Discuss Grid computing, Cluster Computing and Distributed Computing with suitable example. 10

16. Discuss IaaS, PaaS, SaaS with suitable examples. 10

17.(a) Discuss information security in Cloud Computing. 5+5

(b) Explain various application of cloud computing.

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