No. of Printed Pages : 03 **Roll No. .....**

C211

Bachelor of Computer Application

EXAMINATION, 2020

(Third Semester)

(B Scheme) (Main & Re-appear)

(BCA)

BCA201B

PROGRAMMING LANGUAGES

Time : 2½ *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. What is the need of Translator in Programming Language ? Explain various translators.

2. (a) Explain implementation of elementary data type.

(b) Differentiate between the following :

(i) Type checking and type conversion

(ii) Variable and constant

(iii) Syntactic and Semantic rules.

3. (a) What are Record ? Define syntax and specification of record.

(b) Define Arrays and their implementation in programming language.

4. Explain the following using examples :

(a) Subprograms

(b) Union

(c) Type Definition.

5. Discuss various Parameter transmission schemes with example.

6. (a) Define sequence control. What do you mean by sequence control within expression and within statement ?

(b) Discuss Name and Referencing environment for data control in programming language.

7. (a) Discuss Heap storage management with example.

(b) Explain static storage management.

8. Differentiate between the following :

(i) Procedural and Non-procedural language

(ii) C and C++ programming language.

No. of Printed Pages : 03 **Roll No. .....**

C212

Bachelor of Computer Application

EXAMINATION, 2020

(Third Semester)

(B Scheme) (Main & Re-appear)

(BCA)

BCA203B

COMPUTER SYSTEM ARCHITECTURE

Time : 2½ *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. Explain Flynn's Classification of Computer Architecture.

2. Explain, how data is move from Register and Memory ? Also explain micro operations with examples in detail.

3. (a) What is Instruction Cycle ? Draw instruction cycle to load the data.

(b) Explain various types of Instructions with their formats.

4. (a) Which segment register is being used in the given instruction ?

MOV CX, SS : [BX]

(b) What is Control Unit ? Also explain its types with merits and demerits.

5. Differentiate between the following :

(a) Asynchronous and Synchronous data transfer modes.

(b) Isolated I/O and Memory mapped I/O

(c) Serial and Parallel port.

6. Explain DMA Controller in detail.

7. (a) What are logical and physical addresses ?

(b) Explain memory hierarchy in detail.

8. Define cache memory. Explain cache replacement algorithm with example.

No. of Printed Pages : 03 **Roll No. .....**

C213

B.C.A. EXAMINATION, 2020

(Third Semester)

(B Scheme) (Main & Re-appear)

(BCA)

BCA205B

FUNDAMENTALS OF DATABASE MANAGEMENT SYSTEM

Time : 2½ *Hour*s] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. Write short notes on the following :

(a) Advantages and Disadvantages of Database Systems.

(b) Components of DBMS Environment.

2. Differentiate File based approach and Database approach.

3. (a) Explain Logical and Physical Data Independence.

(b) Write down Client Server Architecture of DBMS.

4. What are Data Models ? Explain Object based and Record based Data Models.

5. Explain the following :

(a) Abstraction and Integration

(b) Network Data Model.

6. What is Relational Model ? Explain Relational Data Structure and Properties of Relations.

7. Explain Design and Structure of Distributed database.

8. Explain the following database protection techniques :

(a) Concurrency Control

(b) Recovery.

No. of Printed Pages : 04 **Roll No. .....**

C214

B.C.A. EXAMINATION, 2020

(Third Semester)

(B Scheme) (Main & Re-appear)

(BCA)

BCA207B

DATA STRUCTURES

Time : 2½ *Hour*s] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. (a) Define a data structure. List the different categories of data structures. What different operations can be performed on a data structure ? Differentiate between data type and data structure.

(b) What is time space tradeoff ?

2. (a) How can we measure the complexity of an algorithm ?

(b) What are the applications of different data structures ?

3. (a) Write an algorithm to insert an element between two nodes A and B with given location LOCA and LOCB in doubly Linked List.

(b) Write an algorithm to delete an element from sorted array.

4. (a) Write an algorithm to find number of times an element appears in Linked List.

(b) An array X[–15.....10, 15.....40] requires one byte of storage. If beginning location is 1500 determine the location of X[15][20] in row major and column major order.

5. (a) Write an algorithm to convert infix expression into postfix expression using stack.

(b) Consider an infix expression

P : (A + B ^ D)/(E – F) + G

Convert the expression P into postfix expression using Stacks.

6. (a) Write an algorithm to delete an algorithm from queue when queue is represented using linear array.

(b) What is a priority queue ? What are the applications of Queue ?

7. (a) Write an algorithm to perform graph traversal using depth first search.

(b) Write an algorithm to perform postorder traversal of Binary tree.

8. (a) What is a binary tree ? How a binary tree can be represented in memory using arrays and linked list ?

(b) What is adjacency matrix ? Demonstrate with the help of example.

No. of Printed Pages : 03 **Roll No. .....**

C215

B.C.A. EXAMINATION, 2020

(Third Semester)

(B Scheme) (Main & Re-appear)

(BCA)

BCA209B

INFORMATION SYSTEM ANALYSIS AND DESIGN

Time : 2½ *Hour*s] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. Explain the terms System analysis and System design. Elaborate. Also list the desirable qualities of a system analyst.

2. List and describe the different types of information systems used in organizations. What characteristics distinguish one from another ?

3. (a) Write the advantages and disadvantages of "observation" as information gathering technique.

(b) Distinguish between transaction systems and decision requirements. What relation dies exist between them ?

4. Define a trigger. Why is it of concern to systems analysts ? Describe the role played by triggers in system study.

5. (a) Differentiate between logical and physical view of data.

(b) What do you mean by a "form" ? List different types of forms ? Write some desirable features of forms.

6. Discuss the methods for capturing and entering the input data. List the advantages and disadvantages of each. Which methods are used for batch processing and which for online processing ?

7. (a) List the objectives of system testing. Why are these objectives difficult to achieve ?

   (b) Write and elaborate five features of object oriented software development methodology.

8. Describe your strategy to design, implement and maintain a laboratory management system for a cafeteria.

No. of Printed Pages : 03 **Roll No. .....**

C2

B. Tech. EXAMINATION, 2020

(Third Semester)

(B Scheme) (Re-appear Only)

(Common for All Branches)

GES201B

ENVIRONMENTAL STUDIES

Time : 2½ *Hour*s] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. Discuss the multidisciplinary nature of environmental science and its importance. Discuss the need for public awareness on environment. **15**

2. Write short notes on the following :

(i) Hot spots of biodiversity

(ii) Endangered species of India

(iii) Disaster Management.

3. Discuss the structure and function of an ecosystem. Also discuss the energy flow in the ecosystem.

4. Describe in brief the following terms :

(i) Food Web

(ii) Mineral Resources

(iii) Soil Erosion.

5. Describe the characteristics features, structure and functions of Aquatic ecosystem.

6. Write short notes on the following :

(i) Wasteland reclamation

(ii) Wildlife Protection Act

(iii) Rain water harvesting.

7. Define Pollution. Describe the causes, effects and control measures of air pollution.

8. (a) Discuss the role of information technology in maintaining healthy environment.

(b) Differentiate the renewable and non-renewable sources of energy.