20D741

B.C.A. EXAMINATION, 2022

(Fourth Semester)

(C Scheme) (Main Only)

(BCA)

BCA202C

DATA COMMUNICATION AND

NETWORKING

Time : 3 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 *Five* questions in all. All questions carry equal marks.

Unit I

1. (a) Explain the advantages of having layered architecture of computer networks. What are interfaces and services here ? **9**

   (b) Describe the terms attenuation, distortion, noise and bandwidth. **6**

2. Explain guided transmission media in detail. **15**

Unit II

3. Explain the sliding window Flow Control Mechanism with an example. **15**

4. Write short notes on the following : **5×3=15**

   (a) NIC and PC cards

   (b) Routers

   (c) Bridges

   (d) Gateways

   (e) Switch.

Unit III

5. (a) Describe the IPv6 header and explain salient features of this protocol. **10**

   (b) What is Subnet ? How to identify its address ? Will this address be same as the network address ? **5**

6. Explain the significance of Switching. What are different switching techniques used in computer networks ? Discuss. **15**

Unit IV

7. (a) Differentiate among Internet, Intranet and Extranet. **5**

   (b) Explain any *five* modes of connecting to Internet. **10**

8. Give brief description of the following : **3×5=15**

   (a) MIME

   (b) IMAP

   (c) POP.

(ii) Write and explain the stack based storage management. **7.5**

8. What are the storage management phases ? Discuss the "heap storage management with variable size elements." **15**

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BCA204C

PROGRAMMING LANGUAGES

Time : 3 Hours]   [*Maximum Marks : 75*

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

Unit I

1. (i) List five benefits of studying different programming languages. **7.5**

(ii) Briefly explain the process of compilation of a program written in a high level language. **7.5**

2. (i) Write and explain any *five* benefits of declaration statements. **7.5**

(ii) What do you mean by numeric data types ? What are the advantages offended by them to the programmers ? **7.5**

Unit II

3. Describe any *two* mechanisms using which the programmers can create new data types of their choice in addition to the data types supported by a programming language. **15**

4. (i) Explain any *four* operations which are performed on the data stored in a structured data type. **7.5**

(ii) Describe the packed and unpacked representation of elements of an array. **7.5**

Unit III

5. (i) List the different kinds of associations which take place during the execution of a program ? Explain with the help of a suitable example. **7.5**

(ii) Define a referencing environment. List the main components of the referenceing environment of a program. **7.5**

6. Explain different parameters transmission schemes used for establishing the connection between actual and formal parameters of a subprogram. **15**

Unit IV

7. (i) Explain how the object oriented languages are superior than procedural languages. **7.5**

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B.C.A. EXAMINATION, 2022

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(C Scheme) (Main Only)

BCA

BCA206C

Relational Database Management System

Time : 3 Hours]   [*Maximum Marks :* 75

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

Unit I

1. What are the salient features of Relational Database Model ? Describe each in detail. **15**

2. What is relation calculus ? Write its opeations with examples of each. **15**

Unit II

3. Why Normalization is needed ? Explain difference between 4NF and BCNF with the help of an example. **15**

4. (a) What are various types of functional dependencies ? Explain. **8**

   (b) What is delete anomaly ? Illustrate with the help of an example. **7**

Unit III

5. Explain how the following are achieved SQL write appropriate SQL code : **15**

   (a) Adding Foreign Key to an existing table.

   (b) Increasing size of a column in an existing table.

   (c) Creating a table from an existing table.

   (d) Using Default constraint for a column.

   (e) Inserting a Null value in a column.

6. What are various types of Join opeations available in SQL ? Write example for each. **15**

Unit IV

7. Write a detailed description of Cursors with their applications in DBMS. **15**

8. Write short notes on the following : **15**

   (a) Indexes in SQL

   (b) User Defined functions in PL/SQL.

20D744

B.C.A. EXAMINATION, 2022

(Fourth Semester)

(C Scheme) (Main Only)

BCA

BCA208C

CORE JAVA

Time : 3 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 *Five* questions in all. All questions carry equal marks.

Unit I

1. (a) Write a program in Java to input any three numbers from the console and find out the maximum number. **10**

   (b) What is Scanner Class ? Why is it used ? **5**

2. (a) What is an Array ? How is array in java different from array in C++ ? **7**

   (b) What is JVM and JRE ? Explain its working. **8**

Unit II

3. (a) What is the diference between a static and non-static inner class ? **5**

   (b) Explain user define Package ? Create a user define package with its accessibility and members. **10**

4. Write short notes on the following : **15**

   (a) Abstract Class

   (b) Access Control

   (c) Static Class.

Unit III

5. What is an Interface ? How interfaces can be used to implement the concept of multiple inheritance in Java ? **15**

6. What is checked and unchecked exception ? Write a program in Java to handle exceptions. **15**

Unit IV

7. What is meant by Multi-threading ? What are the 2 ways of creating a thread ? Which is the best way and why ? **15**

8. (a) What is the difference between AWT and swing ? **7**

   (b) Explain in detail AWT event hierarchy. **8**

Unit IV

7. (a) Explain software maintenance along with its types and characteristics. **8**

   (b) What do you mean by unit testing and integration testing ? Discuss which one is better ? **7**

8. Give brief description of the following : **15**

   (a) Software Quality Factor

   (b) Software Re-engineering

   (c) Software Reliability.

20D745

B.C.A. EXAMINATION, 2022

(Fourth Semester)

(C Scheme) (Main Only)

(BCA)

BCA210C

SOFTWARE ENGINEERING

Time : 3 Hours]   [*Maximum Marks :* 75

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

Unit I

1. (a) What is SDLC ? Explain the different phases in SDLC. **8**

   (b) Explain the role of metrices in software development process. **7**

2. What is Software Engineering ? Explain the various phases in software development. **15**

Unit II

3. (a) Explain how COCOMO2 estimation model differs from original COCOMO model. **8**

   (b) What is Project Planning ? Discuss the essential activities of project planning. **7**

4. (a) What is data flow diagram ? What are its shortcomings as a tool for performing structured analysis ? **8**

   (b) What do you mean by data dictionary in context of structured analysis ? How is it useful in software development and maintenance ? **7**

Unit III

5. (a) What do you understand by system testing ? Discuss the different kinds of system testing. **8**

   (b) Discuss big-bang, bottom-up, top-down and mixed integration integration testing. **7**

6. (a) What is the difference between Validation and Verification ? **7**

   (b) Explain the various coding styles used in software designing. **8**