

This question paper contains 4 printed pages]

Roll No.

Sl.No. 1262

331

B.C.A. (Part - III)

B.C.A. (Part - III) EXAMINATION, 2017

(Faculty of Science)

(Three-Year Scheme of 10 + 2 + 3 Pattern)

Paper - 331

DATA STRUCTURE (Using C ++)

Time : Three Hours]

[Maximum Marks : 100

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Question paper consists of three Parts.

All THREE Parts are compulsory.

PART - I: (Very Short Answer) consists of 10 questions of 2 marks each. Maximum limit for each question is up to 40 words.

PART - II: (Short answer) consists of 5 questions of 4 marks each. Maximum limit for each question is up to 80 words.

PART - III:(Long answer) consists of 5 questions of 12 marks each with internal choice.

PART - I

1. a) What is a LIFO? [2]
- b) What is a dequeue? [2]
- c) What are the notations used in evaluation of arithmetic expressions using prefix and postfix form? [2]
- d) In tree construction which is the suitable efficient data structure? (Array, linked list, Stack, Queue) [2]

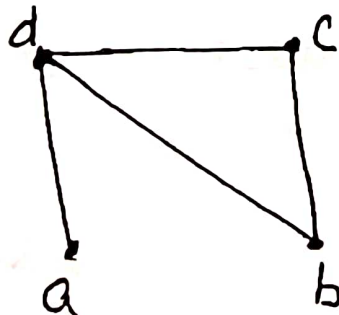
R-707

P.T.O.

- e) Whether linked is Linear or Non-linear data Structure. [2]
- f) What is doubly linked list? [2]
- g) What is extended binary tree? [2]
- h) What is connected graph? [2]
- i) What is linear Search? [2]
- j) What is the time complexity of quick sort algorithm? [2]

PART - II

2. Explain the different operations to be performed on the data structures. [4]
3. Discuss the advantages, if any of a two-way list over a one-way list for each of the following operations:
- a) Deleting a node whose location POS is given.
- b) Traversing the list to process each node. [2 + 2]
4. Draw all possible binary tree T, with 3 nodes. [4]
5. Find the number of spanning trees in the following graph: [4]



6. Explain the time complexity of bubble sort algorithm. [4]

PART - III

7. What do you mean by STACK? Write an algorithm in C to perform PUSH and POP operations. [12]

OR

What is Circular queue? Write an algorithm in C for insertion and deletion in Queue. [12]

8. Convert $X : A + (B * C - (D/E - F) * G) * H$ into postfix form showing stack status after every step in tabular form. [12]

OR

Write an algorithm to insert a number in the linked list at the following positions:

- In the beginning of the list.
- Inserting a new node at the specified positions.
- At the end of the list.

[12]

9. A binary tree T has 9 nodes. The inorder and preorder traversals yield the following sequence of nodes: [12]

Inorder: E A C K F H D B G

Preorder: F A E K C D H G B

Draw the tree T.

OR

Write an algorithm for each of the following:

- Inorder binary tree traversal.
- Preorder binary tree traversal.
- Postorder binary tree traversal.

[12]

10. Explain the shortest path algorithm with suitable example.

[12]

OR

Explain the Breadth first traversal algorithm with example.

[12]

11. Explain the selection sort algorithm with example.

[12]

OR

What is the pre-requisite for the binary search? Explain the binary search algorithm.

[12]

This question paper contains 3 printed pages]

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332

B.C.A. (Part - III)

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(Faculty of Science)

(Three-Year Scheme of 10 + 2 + 3 Pattern)

Paper - 332

SYSTEM DESIGN CONCEPTS

Time : Three Hours]

[Maximum Marks : 100

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PART - I

1. a) What do you mean by the term "System"?
- b) What is prototyping?
- c) What do you mean by Entity Relationship Diagram?
- d) Define Data Modeling.
- e) What is the Need of System Testing?

R-708

P.T.O.

- f) Why we do documentation for a system?
- g) Explain any 03 objectives of s/w Project Planning.
- h) Explain any 03 s/w design Principals.
- i) What do you mean by Information System?
- j) Explain various level of a management.

[10 × 2 = 20]

PART - II

- 2. What do you mean by system development approach, explain in brief. [4]
- 3. Explain Data Flow Diagram. [4]
- 4. Differentiate Verification and Validation. [4]
- 5. Define COCOMO Model. [4]
- 6. Explain major components of MIS. [4]

PART - III

- 7. a) Explain System Development Process. [6]
- b) What is Feasibility study. [6]

OR

Explain SDLC in detail. [12]

8. a) What is DFD Notations? [6]
b) What is Structure chart? [6]

OR

- a) Explain Conversion process of Data Flow Diagram to structure chart. [6]
b) Explain some of the interface design tools. [6]

9. a) Explain White Box and Black Box Testing. [6]
b) Explain Integration Testing [6]

OR

- a) Explain System Maintenance. [6]
b) Explain Testing Principles in brief. [6]

10. a) What do you mean by Decomposition Techniques. [6]
b) Explain Data Design. [6]

OR

- a) What is Procedural design? [6]
b) What is Object Oriented Concepts? [6]

11. a) Explain Types of Information System? [6]
b) Explain Simon's Model of decision making. [6]

OR

- a) Explain structured V/s Un-structured decision. [6]
b) Explain Formal V/s Informal System. [6]



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B.C.A. (Part - III)

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(Faculty of Science)

(Three-Year Scheme of 10 + 2 + 3 Pattern)

Paper - 333

NETWORKING TECHNOLOGIES

Time : Three Hours]

[Maximum Marks : 100

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PART - I

1. Attempt all questions. Each question carries 2 marks. [10 × 2 = 20]

- a) What is Line Configuration?
- b) Define Network.
- c) What is Bandwidth?
- d) What is protocol?

- e) What is Telnet?
- f) What is MIME?
- g) What is Multiplexing?
- h) What do you mean by SS7?
- i) What is data communication?
- j) What is microwave?

PART - II

Attempt all questions. Each question carries 4 marks.

- 2. Explain the various Transmission Mode. [4]
- 3. Describing Routing Algorithms. [4]
- 4. Define TCP/IP Protocol. [4]
- 5. What is time division switching? Explain. [4]
- 6. List the various layers used in SONET. [4]

PART - III

- 7. What is topology? Explain various topologies use in networking. [12]

OR

What are the differentiate between LAN, MAN, WAN and Internet? Explain. [12]

8. Write short notes on: [12]
- a) Error detection and correction.
 - b) Transmission Media.

OR

What is OSI Model? Explain the different layers of OSI Model. [12]

9. Illustrate the features of DHCP and explain TCP messaging and signaling. [12]

OR

Write short notes on: [12]

- a) DNS
- b) UDP
- c) IP Multicasting.

10. Explain the Packet Switching? Also define Space Division Switching. [12]

OR

Differentiate between Asynchronous and Synchronous transmission. [12]

11. What is Data Communication System? Explain its characteristics and components. [12]

OR

- a) Describe Geo-synchronous Satellites.
- b) Explain Optical Fiber Communication.

[12]



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334

B.C.A. (Part - III)

B.C.A. (Part - III) EXAMINATION, 2017

(Faculty of Science)

(Three-Year Scheme of 10 + 2 + 3 Pattern)

Paper - 334

CORE JAVA PROGRAMMING

Time : Three Hours]

[Maximum Marks : 100

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PART - I

1. a) Why is Java Architectural Neutral?
- b) What type of variables can be used in a switch statement?
- c) Why Packages are used?
- d) Which are the two subclasses under Exception class?
- e) What is the difference between a Window and a Frame?

- f) What is Swing?
- g) What is the difference between applications and applets?
- h) What is Runnable in Java?
- i) What is a Socket?
- j) Which class is used by server applications to obtain a port and listen for client requests?

[10 × 2 = 20]

PART - II

- 2. a) Is Java a pure object oriented language? If not why?
- b) What is the difference between throw and throws?
- c) What is the difference between Swing and AWT components?
- d) What is the order of method invocation in an Applet?
- e) What does JDBC do?

[5 × 4 = 20]

PART - III**Unit - I**

- 3. What are the most important features of Object Oriented Programming languages? Differentiate between class and instance variables. [12]

OR

What the differences are between structured and object oriented programming? Explain the features of JAVA. [12]

Unit - II

- 4. What do you mean by string handling? Explain various methods of string handling. [12]

OR

What is Inheritance? Explain its different types. Write a java program to implement multiple inheritances. [12]

Unit - III

5. What is AWT? Explain AWT package in brief. [12]

OR

What are the different types of layout managers? Explain. [12]

Unit - IV

6. Explain how to set font of an applet using Font class. Give suitable code segment to demonstrate. [12]

OR

What is multithreaded programming? Explain how threads are created in Java. Explain the need of thread synchronization, with an example. [12]

Unit - V

7. Explain Datagram. Explain the classes for implementing it. [12]

OR

What is a TCP/IP socket? Explain basic networking features of Java. [12]



This question paper contains 3 printed pages]

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Sl.No. 1362

335

B.C.A. (Part - III)

B.C.A. (Part - III) EXAMINATION, 2017

(Faculty of Science)

(Three-Year Scheme of 10 + 2 + 3 Pattern)

Paper - 335

E-COMMERCE

Time : Three Hours]

[Maximum Marks : 100

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PART - I

1. Attempt all questions. Each question carries 2 marks. [10 × 2 = 20]
- Name any four application areas of E-Commerce.
 - What is the value chain?
 - What do you mean by client and server?
 - What is Technical Design?

R-711

P.T.O.

- e) What is testing?
- f) What is validation?
- g) What is Electronic Purse?
- h) What is Cyber Law?
- i) What is m-wallet?
- j) What is Credit Risk?

PART - II

Attempt all questions. Each question carries 4 marks.

[5 × 4]

- 2. Define E-commerce. What are the benefits of using E-commerce?
- 3. Write short note on High-Level Design.
- 4. Explain the implementation planning.
- 5. What is on electronic payment system? What are its types?
- 6. Explain the transactional and operational risk of E-Banking?

PART - III

Attempt all questions. Each question carries 12 marks.

- 7. Define EDI. Explain the layered architecture of EDI.

[12]

OR

Discuss B2B, B2C, C2B and C2C model of E-Commerce with suitable examples.

[12]

8. What is Detailed Design? Discuss its designing elements and its designing steps. [12]

OR

Describe a Client-Server Model of E-Commerce with its characteristics? [12]

9. Differentiate between validation and verification. Explain the validation process and its types. [12]

OR

Explain various types of testing use in E-Commerce. [12]

10. Define E-Customer Relationship Management and hence explain its architecture in detail. [12]

OR

Write shorts notes on: [2 × 6]

- a) Business Ethics.
- b) Security risk of E-Commerce.

11. What is e-banking? Explain e-banking support services. [12]

OR

Write shorts notes on: [2 × 6]

- a) Mobile Delivery Technology.
- b) Applications of M-Commerce.



This question paper contains 3 printed pages/

Roll No.

Sl.No. 0982

336 (B)

B.C.A. (Part - III)

B.C.A. (Part - III) EXAMINATION, 2017
(Faculty of Science)
(Three-Year Scheme of 10 + 2 + 3 Pattern)
Paper - 336 (B)
PHP

Time : Three Hours]

[Maximum Marks : 100

Answer of all the questions (short answer as well as descriptive) are to be given in the main answer -book only. Answers of short answer type questions must be given in sequential order. Similarly all the parts of one question of descriptive part should be answered at one place in the answer-book. One complete question should not be answered at different places in the answer-book. Write your roll numbers on question paper before start writing answers of questions.

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- PART III: (Long answer) consists of 5 questions of twelve marks each with internal choice.*

PART - I

1. a) What do you mean by server side programming?
- b) Is there any limit on how large a PHP integer value can be?
- c) What is the syntax of for loop in PHP? Write the syntax with its explanation.
- d) How we can define an array in PHP? Write the syntax to define and initialize an array elements.
- e) Explain the use of substr() function in PHP.
- f) What is the use of function in PHP? How we can define a function in PHP?
- g) What is the use of \$ - GET & \$ - POST variables in PHP?
- h) What is the difference between include() and require() function?
- i) What is the use of unlink() function in file handling in PHP?
- j) Differentiate between DDL and DML.

R-713

P.T.O.

PART - II

2. Explain various data types supported by PHP.
3. Write various control flow statements used in PHP.
4. Write the advantages to use or create user defined functions in PHP. Also write the code to define a function and calling a function in PHP.
5. What are the different methods to pass data for a form submission?
6. How we can copy a file from one location to another location in PHP? Write the code segment for the process.

PART - III

7. Explain various basic features of PHP.

OR

Explain various operators supported by PHP environment. Support your answer with proper syntax.

8. Explain various looping constructs used in PHP. Write a PHP code to print the fibonacci series in PHP.

OR

Write a PHP program code to sort an array of 10 elements in ascending order using PHP.

9. Write short notes on the following string functions:

- a) ltrim()
- b) strtolower()
- c) strcmp()
- d) explode()
- e) strrev()
- f) substr()

OR

Write PHP code to create the following functions.

- a) Write a PHP function to calculate the factorial of a given number using parameter passing method.
- b) Write a PHP function to concatenate two strings.

10. What is exception? How we can handle exceptions in PHP? Write a PHP code to explain exception handling.

OR

What is cookies? How we can manage the cookies in PHP? How we can create, modify and delete the cookies? Write the PHP code for the same

11. How can we manage the insert and update operations in MY SQL database. Write a PHP program code to perform these operations with a database.

OR

Write a program code with PHP to create a data entry form and store the data onto a database with proper fields.

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