

No. of Printed Pages : 03

Roll No.

E211

B.C.A. EXAMINATION, Dec. 2019

(Fifth Semester)

(B. Scheme) (Main & Re-appear)

(BCA)

BCA301B

PRINCIPLES OF SOFTWARE

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, selecting at least *one* question from each Unit. All questions carry equal marks.

(3-26/13)M-E211

P.T.O.

Unit I

1. Explain waterfall model of software development life-cycle in detail. 15
2. Explain the software risk management process. 15

Unit II

3. What is Data Flow Diagram (DFD) ? Explain with example the level-1 DFD. 15
4. What are different types of coupling in software modules ? Explain. 15

Unit III

5. What is structured programming ? Explain. 15
6. Explain basic path software testing with suitable example. 15

Unit IV

7. What are different levels of software testing ? Explain unit testing in detail. 15
8. Explain software maintenance process. 15

Unit IV

7. (a) Write the 3-dimensional transformation matrix for translation and rotation. 5
(b) What do you understand by composite transformation ? Explain. 5
(c) Briefly discuss the concept of Quadtree data structures. 5
8. Write short notes on the following :
(a) Bezier curves
(b) Hermite curves. 15

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Roll No.

E212

B.C.A. EXAMINATION, Dec. 2019

(Fifth Semester)

(B. Scheme) (Main & Re-appear)

(BCA)

BCA303B

COMPUTER GRAPHICS

Time : 3 Hours]

[Maximum Marks : 75

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Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit.

Unit I

1. (a) What is Computer Graphics ? Briefly discuss history of Computer Graphics ? Also write applications of computer graphics. 12
- (b) What are Raster Scan Systems ? Explain. 3

2. (a) What are Hard-Copy Devices ? Explain the working of any *two*. 7
- (b) Define the following terms :
 - (i) Interlacing
 - (ii) Frame buffer
 - (iii) Resolution
 - (iv) Aspect ratio. 8

Unit II

3. Describe DDA line drawing algorithm. Also rasterize a line from (0, 0) to (4, 4) using DDA algorithm. 15

4. What is the concept of Bresenham's circle drawing algorithm ? Also plot a circle by using Bresenham's algorithm whose radius is 4 and centre is at (0, 0). 15

Unit III

5. (a) Consider the 2-dimensional square A(1, 0) B(0, 0) C(0, 1) D(1, 1). Rotate the square ABCD by 45 degree clockwise about A(1, 0). 7
- (b) Write and explain Cyrus Beck line clipping algorithm. 8

6. (a) What do you understand by viewing pipeline ? Also explain the concept of window to viewport coordinate transformation. 10
- (b) Write short notes on the following 2-D geometric transformations :
 - (i) Translation
 - (ii) Scaling. 5

Unit IV

7. Discuss the following with suitable example :
- (a) Deterministic vs. Adaptive routing
 - (b) Broadcasting vs. Flooding. **8+7**
8. (a) What is Distance vector routing and why it suffers from count to infinity problem ? Explain.
- (b) What do you mean by congestion in a network ? Describe various congestion control methods. **8+7**

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Roll No.

E213

B. C. A. EXAMINATION, Dec. 2019

(Fifth Semester)

(B. Scheme) (Main & Re-appear)

(BCA)

BCA305B

DATA COMMUNICATION AND NETWORKS

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, selecting at least *one* question from each Unit.

Unit I

1. (a) Discuss various Transmission Media used in Communication Networks. Also discuss their applications. **10**
- (b) What is the significance of twists in twisted pair cable ? Under what circumstances is the coaxial cable superior to the twisted pair cable ? **5**
2. Explain in detail :
 - (a) Message Switching
 - (b) Packet Switching
 - (c) Time Division Multiplexing. **3×5=15**

Unit II

3. Why OSI model is called a reference model ? Explain various layers of OSI model in detail. Differentiate between OSI and TCP/IP model. **15**

4. (a) What are ATM Networks ? Explain in detail. Why are ATM networks mainly used for backbone ? **10**
- (b) Differentiate between hubs and switches. **5**

Unit III

5. (a) Explain ALOHA and Slotted ALOHA and compare them on the basis of their efficiency. **6**
- (b) What do you mean by CSMA MAC Protocol ? Explain its variants i.e. non-persistent, 1-persistent and p-persistent CSMA. **9**
6. (a) Given the data word 1010011010 and the divisor 10111. Show the conversion of the code word at the sender side using CRC and check the code word at the receiver side. **8**
- (b) What is Hamming Distance ? Explain with example the Hamming method for error control. **7**

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E214

B.C.A. EXAMINATION, Dec. 2019

(Fifth Semester).

(B. Scheme) (Main & Re-appear)

(BCA)

BCA307B

VISUAL PROGRAMMING

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, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. Explain the VB integrated development environment. 15
2. Explain different control structures in VB. 15

Unit II

3. Describe methods, statements, properties and events in VB. 15
4. Describe the following : 7+8=15
 - (i) Visual vs. Non-visual Architecture
 - (ii) User Input Event Handling.

Unit III

5. Design a simple calculator in VB with its functionality. 15
6. Write short notes on the following :
 - (i) Message Box
 - (ii) Pop up Menus
 - (iii) MDI Form. 5+5+5=15

Unit IV

7. Describe traversal, insertion, deletion and modification in a table using suitable VB interface. 15
8. Write short notes on the following :
 - (i) ADO
 - (ii) RDO. 7+8=15

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E215

B.C.A. EXAMINATION, Dec. 2019

(Fifth Semester)

(B. Scheme) (Main & Re-appear)

(BCA)

BCA309B

WEB TECHNOLOGIES

Time : 3 Hours]

[Maximum Marks : 75

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Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

(2-23/9) M-E215

P.T.O.

UNIT - IV

Value analysis

Testing, Loop Testing, Boundary

Structured Programming, Decision Table

UNIT - III

BCA309B

Control, and coupling,

data flow diagram, data dictionary

UNIT - II

Control flow.

UNIT - I

Unit I

1. What are the building blocks of .NET framework ? Explain. 15
2. Explain in brief about the .NET programming languages. 15

Unit II

3. Explain common language specification in Microsoft .NET framework. 15
4. Explain managed code *Vs.* unmanaged code in Microsoft .NET framework. 15

Unit III

5. Explain the abstract and base classes in C# with the help of suitable example. 15
6. Explain error handling in C# language. 15

Unit IV

7. Explain the components of ADO.NET. 15

8. Write notes on the following :

- (a) Components of ADO.NET
- (b) ADO *vs.* ADO.NET.

15