

18023

B.C.A. Examination, November-2019

COMPUTER NETWORKS

(BCA-503)

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt questions from all sections as per instructions.

Section-A

(Very Short Answer Questions)

Note : Attempt all the five questions. Each question carries 3 marks. Very short answer is required not exceeding 75 words. 5x3=15

1. Which is the best topology for a local area network in a building ? Justify your answer.
2. The power of a signal is 100 mW and the power of the noise is 10μW; what are the values of SNR and SNR_{dB} ?
3. How frequency division multiplexing works ?

4. Differentiate Bridges and Repeaters.
5. What are the services of transport layer ?

Section-B

(Short Answer Questions)

Note : Answer any two questions out of the following three questions. Each question carries 7½ marks. Short answer is required not exceeding 200 words.

2x7½=15

6. Explain any one of the following :
 - (a) Transmission modes
 - (b) LAN and MAN
7. How flow control and error control is done at data link layer ?
8. Explain the functions of session layer.

Section-C

(Detailed Answer Questions)

Note : Attempt any three questions out of the following five questions. Each question carries 15 marks. Answer is required in detail. 3x15=45

(3)

9. Explain the Link state routing algorithm with an example.
10. Discuss the different unguided media with the uses.
11. How packet switching works in a network ? Explain in detail.
12. Discuss different protocols at application layer.
13. What is the essence of Modems ? How DTE-DCE interface works.

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A

Printed Pages : 3

(21119)

Roll No.

B.C.A.-V Sem.

18021

B.C.A. Examination, November-2019

INTRODUCTION TO DBMS

(BCA-501)

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt questions from all sections as per instructions.

Section-A

(Very Short Answer Questions)

Note : Attempt all the five questions. Each question carries 3 marks. Very short answer is required not exceeding 75 words. 5x3=15

1. What do you mean by D.B.M.S. ?
2. Give example of a simple composite attributes of an entity.
3. What do you mean by referential integrity ?
4. What do you mean by DML and DDL ?

18021

[P.T.O.]

(2)

5. Distinguish between functional dependency and multivalued dependency.

Section-B

(Short Answer Questions)

Note : Answer any two questions out of the following (three questions. Each question carries 7½ marks. Short answer is required. 2x7½=15

6. What are the various anomalies associated with RDBMS.
7. What is union compatibility ? Explain.
8. What are the pit falls of lock based protocol ?

Section-C

(Detailed Answer Questions)

Note : Answer any three questions out of the following five questions. Each question carries 15 marks. Answer is required in detail. 3x15=45

9. Define the normal forms. Explain the BCNF in detail.
10. Explain the superkey, primary key and candidate key with example in detail.

18021

11. What are the various characteristics of SQL ? Discuss five aggregate functions with suitable examples.
12. Discuss the selection, projection and join operator of relational algebra with suitable example.
13. What do you mean by Query and sub-query ? Discuss cursor in SQL also.

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A Printed Pages : 3
(21119) Roll No.
B.C.A.-V Sem.

18022

B.C.A. Examination, November-2019
JAVA PROGRAMMING AND DYNAMIC
WEBPAGE DESIGN
(BCA-502)

Time : Three Hours [Maximum Marks : 75]

Note : Attempt questions from all sections as per instructions.

Section-A

(Very Short Answer Questions)

Note : Attempt all the five questions. Each question carries 3 marks. Very short answer is required not exceeding 75 words. 5×3=15

1. Java is Platform Independent. Explain.
2. What is Inheritance ? Give the type of inheritance.
3. Explain Servlet.
4. Why JDBC is used for database connectivity ?
5. What is Layout Manager ?

18022

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(2)

Section-B

(Short Answer Questions)

Note : Attempt any two questions out of the following three questions. Short answer is required not exceeding 200 words. 2×7½=15

6. Explain the following :

(a) Package	4
(b) Exception handling	3½
7. What is Java Script ? Differentiate between Java and Java Script. Give the Supportive example also.
8. What is Thread ? What are the advantage of multithreading ? Write a program in Java for creating two threads.

Section-C

(Detailed Answer Questions)

Note : Attempt any three questions out of the following five questions. Answer is required in detail. 15×3=45

9. What do you understand by Layout Manager ? Give all type of layout available in Java with the help of example.

18022

- 10.** What is JSP ? Explain the advantage of JSP and main component of JSP also. How JSP is different from Servlet. Give an example also.
- 11.** Explain the following :
- (a) Applet viewer
 - (b) CSS
 - (c) RMI
 - (d) Super and final
 - (e) AWT
- 12.** (a) Explain servlet life cycle. 7
(b) Explain drives used in connectivity in Java. 8
- 13.** Create a file to contain information about student performance on a module. Each student has a name, Roll No., subject marks and result.

or

What is Inheritance in Java ? Explain its types, if we need to extend more than one class, how it works ? Give the example also.

18024

B.C.A. Examination, November-2019

NUMERICAL METHODS

(BCA-504)

Time : Three Hours

[Maximum Marks : 75]

Note : Attempt questions from *all* sections as per instructions. Calculator is allowed.

Section-A

(Very Short Answer Questions)

Note : Attempt all *five* questions. Each question carries 3 marks. Very short answer is required not exceeding 75 words. $5 \times 3 = 15$

1. Evaluate the following for $h = 1$:

$$E = e^{hD}$$

2. Construct a divided difference table for the following data :

x	3	5	9	15
y	2	14	38	74

3. Write the formula for Simpson's $3/8^{\text{th}}$ rule.
4. Write the formula for Runge-Kutta method for 4^{th} order.

18024

[P.T.O.]

(2)

5. Perform two iterations of Picard's method to find an approximate solution of the initial value problem :

$$\frac{dy}{dx} = x - y, \quad y(0) = 1$$

Section-B

(Short Answer Questions)

Note : Answer any *two* questions out of the following three questions. Each question carries 7½ marks. Short answer is required not exceeding 200 words.

 $2 \times 7\frac{1}{2} = 15$

6. Using Euler's method find an approximate value of y for $x = 1$, considering $h = 0.5$, given that

$$\frac{dy}{dx} = x + y, \quad \text{and } y(0) = 1$$

7. Apply Newton's divided difference method to obtain an interpolatory polynomial for the following data :

x	3	5	7	9	11	13
f(x)	31	51	17	19	90	110

18024

(3)

8. Find the first two derivatives of $f(x)$ at $x = 1$ from the following table :

x	-2	-1	0	1	2	3	4
$f(x)$	104	17	0	-1	8	69	272

Section-C
(Detailed Answer Questions)

Note : Attempt any three questions out of the following five questions. Each question carries 15 marks. Answer is required in detail. $3 \times 15 = 45$

9. Derive Newton-Raphson's method to find a root of the equation $f(x) = 0$. Prove that this method has Quadratic Convergence.
10. Solve the following system of linear equations using Gauss-Seidel method :

$$10x + 3y + 7z = 41$$

$$3x + 20y + 17z = 101$$

$$x + 19y + 23z = 201$$

perform three iterations.

11. Define Lagrange's interpolation formula. Obtain Lagrange's interpolatory for the following data :

x	1	3	5	7	10
$f(x)$	13	31	25	37	101

18024

[P.T.O.]

(4)

12. State Runge-Kutta method of second order. Using Runge-Kutta method of fourth order find the values of $y(0.2)$, $y(0.4)$ and $y(0.6)$ for the following initial value

$$\frac{dy}{dx} = x^3 - y^3$$

Write Condition that $y(0) = 1$.

13. Evaluate

$$\int_0^1 \frac{dx}{1+x^2} \text{ by using}$$

- (a) Trapezoidal rule
- (b) Simpson's 1/3 rule

18024

B.C.A. Examination, November-2019

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18024

[P.T.O.]

(2)

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