

A
(20222)
BCA-V Sem.

(Printed Pages 3)
Roll No.

18023 (CV-III)
B.C.A. Examination, Dec.-2021
COMPUTER NETWORKS
(BCA-503)

Time : 1½ Hours *[Maximum Marks :75]*

Note : Attempt **all** the sections as per instructions.

Section-A

Note : Attempt any **two** questions. Each question carries **7.5** marks. $2 \times 7.5 = 15$

1. What is UDP?
2. What is DTE-DCE interface?
3. Write a short note on computer network.
4. Differentiate between TDM and FDM.
5. What do you mean by congestion?

P.T.O.

Section-B

Note : Attempt any **one** question out of the following **three** questions. Each question carries **15** marks. $1 \times 15 = 15$

6. Discuss ISDN, its services & layers.
7. What do you mean by guided & unguided media? Explain with example.
8. Draw a neat diagram of OSI model and explain the functioning of each layer.

Section-C

Note : Attempt any **two** questions out of the following **five** questions. Each question carries **22.5** marks. $2 \times 22.5 = 45$

9. What do you understand by routing? Explain any routing protocol in detail. Differentiate between static and dynamic routing.

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10. Write short notes on:
- (a) Throughput & Wavelength
 - (b) Synchronous protocols
 - (c) Routers
11. Explain TCP packet format in detail.
12. Give a brief description of session layer and explain the functions of session layer.
13. Write short notes on:
- (a) Network topology
 - (b) LCP
 - (c) Error control

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18021 (CV-III)

B.C.A. Examination, Dec.-2021

INTRODUCTION TO DBMS

(BCA-501)

Time : 1½ Hours] [Maximum Marks : 75

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

Section-A

(Very Short Questions)

Note : Attempt any **two** questions. Each question carries 7.5 marks. Very Short Answer is required not exceeding 75 words. $2 \times 7.5 = 15$

1. What is Functional dependency? Explain it briefly.
2. What is Transaction? Explain it.

P.T.O.

3. Define Primary Key, Not Null key and Unique key.
4. Explain Hashing in brief.
5. Explain advantage of database management system over file oriented system.

Section-B

(Short Answer Questions)

Note : Answer any **one** question out of the following three questions. Each question carry 15 marks. $1 \times 15 = 15$

6. Explain specialization and generalization concepts in ER diagram with suitable example.
7. Why should normalization be performed on a table and what are its benefits. Explain 3NF.

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8. What are the pitfalls of lock based Protocol?

Section-C

(Long Answer Questions)

Note : Answer any **two** questions out of the following five questions. Each question carry 22.5 marks.

$$2 \times 22.5 = 45$$

9. Write SQL Query for the following table
Employee (ENO, Ename, DOB, Address (City), Salary, Gender, D Number)
Dept (DNumber, Dname, MEMPNO, M-Start date)
1. Display the age of 'male' employee.
 2. Display the name of highest salary paid 'Female' employee.
 3. Display the name of dept. of Employee 'XYZ'.

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P.T.O.

4. Display all employee belong to same address (city).
5. Which employee is oldest manager in Company.
10. (a) Why the concurrency control is needed? Explain it.
(b) Describe different method of Indexes?
11. What are the characteristics of SQL. Discuss the five aggregate function with suitable example.
12. Define E-R Diagram. Draw on E-R Diagram for library management system, take relevant entities and attributes for the library management system.
13. Explain three level architecture of DBMS.

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18022 (CV-III)

B.C.A. Examination, Dec.-2021

JAVA PROGRAMMING AND DYNAMIC

WEBPAGE DESIGN

(B.C.A.-502)

Time : 1½ Hours] [Maximum Marks : 75

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

Section-A

(Very Short Answer Questions)

Note : Attempt any **two** questions. Each question carries **7.5** marks. Very short answer is required not exceeding **75** words.

$$2 \times 7.5 = 15$$

1. Explain the features of Java.
2. What is type casting? Give an example to explain it.

P.T.O.

3. Explain destroy() method, a stage in the life cycle of an applet.
4. What do you mean by a package in Java?
5. State the different access specifiers available in Java.

Section-B

(Short Answer Questions)

Note : Attempt any **one** question out of the following **three** questions. Short answer is required not exceeding **200** words. Each question carries **15** marks.

$$1 \times 15 = 15$$

6. Write a code in Java to generate single calculator using classes and accepting the two integers and operator with all methods to input, display, add, subtract, product, and division.

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7. What is Exception? Give different types of exception that could occur during run-time. Why to handle exception?
8. What are the life-cycle methods for a JSP? What are the differences between the JSP custom tags and Java beans?

Section-C

(Detailed Answer Questions)

Note : Attempt any **two** questions out of the following **five** questions. Answer is required in detail. Each question carries **22.5** marks. $2 \times 22.5 = 45$

9. What are Servlets? What are the advantages of Servlets over CGI? Explain working of service () method of a servlet with examples.
10. Write a method in Java that takes two integer arguments and returns power of it. Suppose X and Y passing as an argument then it returns X to power Y offer calculation.

11. What is thread priority? Write are the default values? Write a program to define two threads. One thread will print 1 to 10 no. whereas other will print 10 to 1 nos.
12. What is JDBC? List out JDBC components and types of drivers. Write difference between Java applet program and Java application program.
13. What is package? What are the benefits of package? Explain Java API packages. List out any five methods of string class by giving an example.

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(20222)
BCA-V Sem.

(Printed Pages 4)
Roll No.

18024 (CV-III)
B.C.A. Examination, Dec.-2021
Numerical Methods
(BCA-504)

Time : 1½ Hours] [Maximum Marks : 75

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

Section-A

(Very Short Answer Questions)

Note : Attempt any **two** questions. Each question carries **7.5** marks.

$$2 \times 7.5 = 15$$

- Find a root of the eq $f(x) = x^3 - 4x - 9 = 0$ using the bisection method in four iterations.
- Find the form of the function from following given data:

x :	0	1	2	3	4
f(x):	3	6	11	18	27

P.T.O.

- Evaluate $\int_0^6 \frac{dx}{1+x^2}$ by Trapezoidal Rule.
- Use Euler's Method with $h=0.1$ to find the solution of $\frac{dy}{dx} = x^2 + y^2$, $y(0)=0$ in the range $0 \leq x \leq 0.5$
- Solve by Gauss-elimination method.
 $2x+y+4z=12$
 $8x-3y+2z=23$
 $4x+11y-z=33$

Section-B

(Short Answer Questions)

Note : Attempt any **one** question out of the following three questions. Each question carries **15** marks. $1 \times 15 = 15$

- By means of Newton's divided difference formula find the value of $f(8)$ and $f(15)$ from the following table.

$$x: \quad 4 \quad 5 \quad 7 \quad 10 \quad 11 \quad 13$$

$$f(x): \quad 48 \quad 100 \quad 294 \quad 900 \quad 1210 \quad 2028$$

- From the given table. Find $\frac{dy}{dx}$ at $x=1.2$.

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x	y
1.0	2.7183
1.2	3.3201
1.4	4.0552
1.6	4.9530
1.8	6.0496
2.0	7.3891

8. Using Picard's method of successive approximation obtain a solution upto fourth approximation of the equation.

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

Section-C

(Detailed Answer Questions)

Note : Attempt any **two** questions out of the following five questions. Each question carries **22.5** marks.

<https://www.ccsustudy.com> $2 \times 22.5 = 45$

9. Find a real root of the equation $x^3 - x^2 - 2 = 0$ by False Position Method.
10. Interpolate by mean of Gauss's formula the population for the year 1936, given the following table.

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P.T.O.

Year (x)	Population (y) (in thousand)
1901	12
1911	15
1921	20
1931	27
1941	39
1951	52

11. Find the value of the integral $\int_0^1 \frac{dx}{1+x^2}$ by using Simpson's $\frac{1}{3}$ and $\frac{3}{8}$ rule.

12. Using Runge-Kutta method of fourth order solve $\frac{dy}{dx} = \frac{y^2 - x^2}{y^2 + x^2}$ with $y(0) = 1$ at $x = 0.2, 0.4$.

13. Find the solution of the system by Gauss-Seidel Method.

$$83x + 11y - 4z = 95$$

$$7x + 52y + 13z = 104$$

$$3x + 8y + 29z = 71$$

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