

Ewing Christian College, Department of Computer Application [BCA]
Third Internal Assessment Exam - 2023-24
Semester I / Paper 1
Mathematics-I (1BCATH1)

Time:1hrs

MM:10

Note: Answer Any Two Question. All question carries Equal marks.

Q.1. State Rolle's theorem. Verify Rolle's theorem for the function

$$f(x) = x^2 - 4x + 3 \text{ on the interval } [1, 3].$$

Q.2. Determine the Taylor Series for the function $f(x) = \cos(4x)$ about $x = 0$.

Q.3. Evaluate the integral $\int_0^1 \left(\frac{2x+3}{5x^2+1} \right) dx$.

Ewing Christian College, Department of Computer Application [BCA]
Second Internal Assessment Exam - 2023-24

Semester I / Paper 1
Mathematics-I (1BCATH1)

Time:1hrs

MM:10

Note: Answer Any Two Question. All question carries Equal marks.

Q.1. Define limit of a function $f: A \rightarrow \mathbb{R}$, ($A \subseteq \mathbb{R}$). Using the definition verify that $\lim_{x \rightarrow 1} \frac{x^2-1}{x-1} = 2$.

Q.2. Evaluate $\lim_{x \rightarrow 1^+} \frac{|x-1|}{x-1}$ and $\lim_{x \rightarrow 1^-} \frac{|x-1|}{x-1}$. Does limit $\lim_{x \rightarrow 1} \frac{|x-1|}{x-1}$ exist?

Q.3. Find a general solution of the differential equation

$$y'' + 2y' + 2y = e^{-x} \sec^3 x.$$

Q.4. Solve the simultaneous equations $\frac{dx}{dt} = 3x + 2y$, $\frac{dy}{dt} = 5x + 3y$.

Enrollment No:

Ewing Christian College, Department of Computer Application [BCA]

First Internal Assessment Exam - 2023-24

Semester I / Paper 1

Mathematics-I (1BCATH1)

Time: 1hrs

MM: 10

Note: There are four questions. Question no. 1 and 2 is compulsory having 2 marks each and question 3 and 4 have internal choices out of which you have to attempt one part from each questions having 3 marks each.

Q.1. Define basis and dimension of a vector space. Write with justification, a basis for the space of all

2×2 real matrices. What is the dimension of this space?

Q.2. Test the equation $\frac{dy}{dx} = \frac{-2xy}{(1+x^2)}$ for exactness and solve it.

Q.3. Define rank of a matrix. By reducing in Echelon form find the rank of the matrix

$$\begin{bmatrix} 0 & -7 & -4 & 2 \\ 2 & 4 & 6 & 12 \\ 3 & 1 & -1 & -2 \end{bmatrix}.$$

OR

Solve the differential equation $xdy - ydx = \sqrt{(x^2 + y^2)} dx$.

Q.4. Using Gauss elimination method solve the following system of linear equations

$$\begin{aligned} x + y - z &= -2 \\ 2x - y + z &= 5 \\ -x + 2y + 2z &= 1 \end{aligned}$$

OR

Solve $(x^2 + 1) \frac{dy}{dx} + 2xy = 4x^2$.

Ewing Christian College, Department of Computer Application [BCA]

Third Internal Assessment Exam – 2023-24

Semester I / Paper 2

Statistics (1BCATH2)

Time:1hr

MM:10

Note: Answer Any Two Question. All question carries Equal marks.

Q.1. What do you mean by Point and Interval estimation?

Q.2. obtain standard deviation of the following data

C.I	0-10	10-20	20-30	30-40	40-50
f	5	4	2	5	4

Q.3. To Show that karl pearson correlation coefficient is independent of change of origin and scale.

Ewing Christian College, Department of Computer Application [BCA]

Second Internal Assessment Exam – 2023-24

Semester I / Paper 2

Statistics (1BCATH2)

Time:1hr

MM:10

Note: Answer Any Two Question. All question carries Equal marks.

Q.1. Ten Coins are thrown simultaneously find the probability of getting at least seven heads.

Q.2. write short notes on Poisson Distribution.

Q.3. A random variable has an exponential distribution with probability density function given by $f(x) = 2e^{-2x}$ for $x \geq 2$

$$= 0 \text{ otherwise}$$

Find mean variable and moment generating function.

Enrollment No:

Ewing Christian College, Department of Computer Application [BCA]
First Internal Assessment Exam - 2023-24
Semester I / Paper 2
Statistics-I (1BCATH2)

Time: 1hrs

MM: 10

1. Let X be a continuous random variable with pdf [4]

$$f(x) = \begin{cases} ax & 0 \leq x \leq 1 \\ a & 1 \leq x \leq 2 \\ -ax + 3a & 2 \leq x \leq 3 \\ 0 & \text{otherwise} \end{cases}$$

c) Determine the constant "a"
d) Compute $p(x \leq 1.5)$

OR

2. The diameter of an electric cable say " x ", is assumed to be a continuous random variable with pdf. $F(x) = 6x(1-x)$ $0 \leq x \leq 1$

- c) Check that $f(x)$ is pdf
d) Determine a number "b" such that $p(x < b) = p(x > b)$

3. Let X be a random variable with the following probability distribution

[3]

x	-3	6	9
$P(X=x)$	$1/6$	$1/2$	$1/3$

Find $E(X)$, $E(X^2)$ and $E(2X+1)^2$

4. Define probability density function also write the properties of Pdf and PMF. [3]

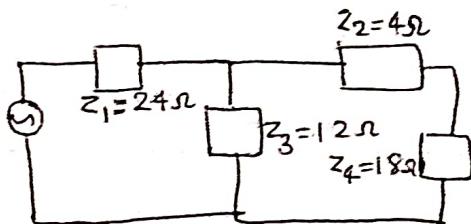
Ewing Christian College, Department of Computer Application [BCA]
Third Internal Assessment Exam – 2023-24
Semester I / Paper 3
Basic Circuit Analysis (1BCATH3)

Time:1hr

MM:10

Note: Answer Any Two Question. All question carries Equal marks.

1. State Norton's, Thevenin and Max Power Theorem.
2. For RLC circuit calculate resonance frequency and resultant impedance in case of resonance.
3. Draw Norton's equivalent of following circuit and find load current.



Ewing Christian College, Department of Computer Application [BCA]
Second Internal Assessment Exam – 2023-24
Semester I / Paper 3
Basic Circuit Analysis (1BCATH3)

Time:1hr

MM:10

Note: Answer Any Two Question. All question carries Equal marks.

1. What is colour code of carbon composition resistors. Discuss colour codes for three bands, four bands and five bands on resistors.
2. What is inductor? How to calculate the value of inductance of a given inductor? What is resultant if inductors are connected in series and parallel combination.
3. What is capacitor? Write the value of reactance due to inductor and capacitor. Discuss how the value of capacitive reactance is infinite for D.C.

Enrollment No:

Ewing Christian College, Department of Computers [BCA]

First Internal Assessment Exam – 2023-24

Semester I / Paper 3

Basic Circuit Analysis (1BCATH3)

Time:1hrs

MM:10

Note: There are four questions. All question carries equal marks

1. State Ohm's Law. Draw circuit diagram to verify Ohm's Law.

2. Distinguish among resistance, reactance and impedance of a circuit element.

3. Difference between majority and minority charge carriers in Semiconductor.

4. Distinguish between n-type and p-type semiconductors.

Ewing Christian College, Department of Computer Application [BCA]
Third Internal Assessment Exam - 2023-24
Semester I / Paper 4
Fundamentals of Programming (1BCATH4)

Time:1hr

MM:10

Note: Answer Any Two Question. All question carries Equal marks.

1. What is Structure? Explain with an example.
2. Explain about Bubble Sort with an example.
3. What is Dynamic Memory Allocation? Explain with and example

Ewing Christian College, Department of Computer Application [BCA]
Second Internal Assessment Exam - 2023-24
Semester I / Paper 4
Fundamentals of Programming (1BCATH4)

Time:1hr

MM:10

Note: Answer Any Two Question. All question carries Equal marks.

- Q.1. what is array? Write a program to copy one array into another.
- Q.2. what is the difference between call by value and call by reference?
- Q.3. Explain control statements in c.

Enrollment No:

Ewing Christian College, Department of Computers [BCA]
First Internal Assessment Exam – 2023-24
Semester I / Paper 4
Fundamental of Programming (1BCATH4)

Time:1hrs

MM:10

Note: There are four questions. Question no. 1 and 2 is compulsory having 2 marks each and question 3 and 4 have internal choices out of which you have to attempt one part from each questions having 3 marks each.

1. Write a program to print table of a given number.

2. Write a program to find greater among three number.

3. Explain the difference between while and do-while loop.

OR

Write a program to find even numbers between two given numbers (by the user).

4. Write a program to find whether the given number is Armstrong or not.

OR

Write a program to find whether the given number is Palindrome or not.

Ewing Christian College, Department of Computer Application [BCA]
Third Internal Assessment Exam - 2023-24
Semester I / Paper 5
Communication Skills (1BCATH5)

Time:1hrs

MM:10

Note: All question carries Equal marks.

1. Antonym of DOCILE is _____?
A) Pliable C) Pliant
B) Stubborn D) Quiet
 2. Synonym of COUNSEL is _____?
A) Count C) Advice
B) Confidence D) Correction
 3. Fill up the blanks in the following sentence with the words selected from those given in bracket.
To err is _____ to forgive divine. He is a man of _____ nature. (humane, human)
 4. Select the appropriate meaning of the given idiom.
"To take the bull by the horns."
A) To speak arrogantly.
B) To surrender to the enemy.
C) To murder someone.
D) To handle difficulties directly.
 - 5) Select the appropriate meaning of the given idiom.
"To pull one's socks up."
A) To wear a pair of new socks.
B) To try something new and strange.
C) To make an effort to improve one's performance.
D) To depart
6. You manage the supply of books in the school library. Write a letter for placing the order for the books to the Janesh Publishing House Ltd.

Ewing Christian College, Department of Computer Application [BCA]
Second Internal Assessment Exam - 2023-24
Semester I / Paper 5
Communication Skills (1BCATH5)

Time:1hr

MM:10

Note: Answer Any Two Question. All question carries Equal marks.

1. Explain the terms Paralanguage and Proxemics.
2. How can we overcome the various barriers to communication?
3. Explain the process of listening.

Enrollment No:

Ewing Christian College, Department of Computer Application [BCA]

First Internal Assessment Exam - 2023-24

Semester I / Paper 5

Communication Skill (1BCATH5)

Time: 1hrs

MM: 10

Note: There are four questions. All question carries same marks

1. What is communication?
2. Compare the formal and informal networks of communication in the organization.
3. Give the components of the communication process.
4. Discuss briefly the Seven Cs of Communication.

Ewing Christian College, Department of Computer Application [BCA]
Second Internal Assessment Exam – 2023-24
Semester 1 / Paper 6
Business Systems (BCA 106)

Time: 30 min.

MM:10

Note: Answer Any Two Question. All question carries Equal marks.

Q1: Define a payroll system. Explain how to get info required to prepare payslip of an employee.

Q2: What is computerized financial accounting?

Q3: What are information systems? Explain their types and components.

Q4: Discuss Inventory Management techniques like VED, SDE and FSN

Ewing Christian College, Department of Computer Application [BCA]
Third Internal Assessment Exam – 2023-24
Semester 1 / Paper 6
Business Systems (BCA 106)

Time: 30 min.

MM:10

Note: Answer Any Two Question. All question carries Equal marks.

Q1: Explain object oriented analysis and design.

Q2: What do you mean by the resolution of data access conflicts.

Q3: What is a data flow diagram? Explain with example.

Enrollment No:

Ewing Christian College, Department of Computer Application [BCA]

First Internal Assessment Exam - 2023-24

Semester I / Paper 6

Business System (1BCATH6)

Time: 1hrs

MM: 10

Note: There are four questions. Question no. 1 and 2 is compulsory having 2 marks each and question 3 and 4 have internal choices out of which you have to attempt one part from each questions having 3 marks each.

1. What is a system? Explain its types.
2. What is the difference between a master file and a transaction file?
3. What is MIS? How does it differ from DSS.

OR

What are the functions of management?

4. Explain the different levels of management.

OR

What are the various ways of organizing files? Explain in detail.

BCA-1/1**B.C.A. First Semester Examination, 2023-24****COMPUTER APPLICATION****First Paper****Mathematics-I****Time : 3 hours****Max. Marks : 60**

Note : Attempt all 7 questions. Section-A contains question no. 1 (comprising of very short answer type questions) which is compulsory and carries 6 marks. Section B contains question Nos. 2, 3 & 4 which are short answer type questions and carry 6 marks each. Section C contains question nos. 5, 6 & 7 which are long answer type questions carrying 12 marks each.

SECTION - A

1. Attempt all parts of the following :

- (a) Define a vector space over a field.

(b) Evaluate $\int e^x \left(\frac{1}{x} + \log x \right) dx$.

(c) Expand $f(x) = \tan^{-1} x$ about origin.

(d) Discuss exact differential equations, with example.

SECTION - B

2. Discuss the homogeneous and non-homogeneous system of equations.

OR

Find the inverse of $A = \begin{pmatrix} a & b \\ c & d \end{pmatrix}$ and verify $AA^{-1} = I$.

3. Find maximum value of $f(x) = x^2 + x + 1$ on $(2, 3)$.

OR

State and prove IMVT.

4. Evaluate $\int \frac{dx}{\sqrt{a^2 - x^2}}$.

OR If a is a real number, then

Solve $x \frac{dy}{dx} + x^2 y = e^{x^2}$ given $y(0) = 0$.

SECTION – C

5. (a) Evaluate $D^n[\sin 2x \cdot \cos 2x]$.
- (b) Find eigen values and eigen vectors of

$$A = \begin{pmatrix} 1 & 3 \\ 2 & 5 \end{pmatrix}$$

OR

- (a) Explain Improper integrals, with illustrative example.
- (b) State Rolle's Theorem and verify Rolle's Theorem for the function $f(x) = x^2 - 4x + 3$ on interval $[1, 3]$.

6. (a) Find the value of k , if :

$$f(x) = \begin{cases} \frac{\sin 2x}{\sin 3x} & x \neq 0 \text{ is continuous at } x = 0 \\ k & x = 0 \end{cases}$$

- (b) Discuss existence theorem, with example.

OR

Solve $x^3 \frac{dy}{dx} + x^2 y = \sin x$

- (b) Determine the Taylor series for the function $f(x) = \cos(4x)$ about $x = 0$.

7. (a) Solve $[D^2 + D + 1] y = 0$ $D = \frac{d}{dx}$

(b) Solve $[D^2 + 2D + 3] y = 0 = \cos 2x + \sin 3x$

OR

(a) Explain Euler's and Cauchy equation with example.

(b) Evaluate: $\int_0^1 x(1-x)^3 dx$

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100

1BCATH2

BCA-1/2

B.C.A. First Semester Examination, 2023-24

COMPUTER APPLICATION

Second Paper

Statistics

Time : 3 hours

Max. Marks : 60

Note : Attempt all 7 questions. Section-A contains question no. 1 (comprising of very short answer type questions) which is compulsory and carries 6 marks. Section B contains question Nos. 2, 3 & 4 which are short answer type questions and carry 6 marks each. Section C contains question nos. 5, 6 & 7 which are long answer type questions carrying 12 marks each.

SECTION - A

1. Define the following :
 - (a) Power of test
 - (b) Types of errors in testing process.

SECTION - C

5. Define Pearson's correlation coefficient with its properties. (a)

OR

Compare various definition of probability.

6. Define binomial distribution with example. Find

$$E \frac{1}{X+1} \text{ when } X \sim B(n, p).$$

OR

Write a note on χ^2 -test.

7. Write notes on :

(a) Measures of dispersion

(b) t-test

(c) Memory lessness property.

OR

- (a) Uniform distribution and its uses.
- (b) Properties of normal distribution.
- (c) Baye's theorem.

RO

QUESTION PAPER PREPARED BY DR. S. K. BHATTACHARYA

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QUESTION PAPER IS READY

READY TO USE

NOT USED FOR EXAMINATION

NOT USED

QUESTION PAPER IS READY

BCA-1/2

(4)

SAT-A-001

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1BCATH3

BCA-1/3

B.C.A. First Semester Examination, 2023-24

COMPUTER APPLICATION

Third Paper

Basic Circuit Analysis

Time : 3 hours

Max. Marks : 60

Note : Attempt all 7 questions. Section-A contains question no. 1 (comprising of very short answer type questions) which is compulsory and carries 6 marks. Section B contains question Nos. 2, 3 & 4 which are short answer type questions and carry 6 marks each. Section C contains question nos. 5, 6 & 7 which are long answer type questions carrying 12 marks each.

SECTION - A

1. (a) What is the capacitance of a capacitor if a charging current of 0.1A flows when the applied voltage changes 20 V at a frequency of 50 Hz ?
(b) If current through a resistor is halved, then what would be the wattage developed by it?

(c) Calculate the inductive reactance offered by a coil of inductance 250×10^{-6} H to radio frequency current of frequency 1 MHz.

SECTION - B

2. A coil has a resistance of 30Ω and an inductance of 127.3×10^{-3} H. It is connected across 200V, 5Hz ac supply. Find (a) impedance, (ii) circuit current, (c) phase angle ϕ .

OR

What is capacitive reactance? How it is different from resistance? Why a capacitor blocks direct current?

3. Draw circuit diagrams of RTL circuit and explain its working.

OR

Draw circuit diagram of DTL circuit and explain its working.

4. Describe principle of operation and construction of moving coil Galvanometer.

OR

Describe construction theorem.

SECTION - C

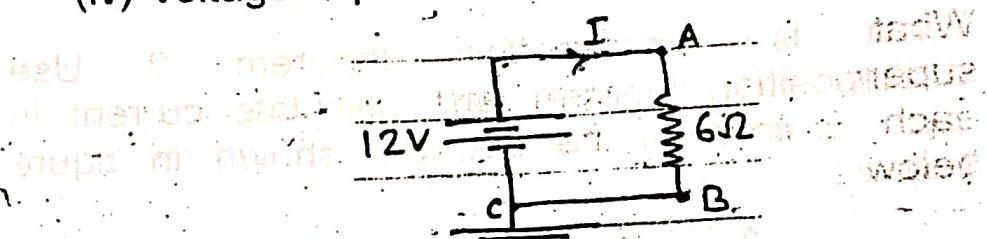
5. State and prove Thevenin theorem.

OR

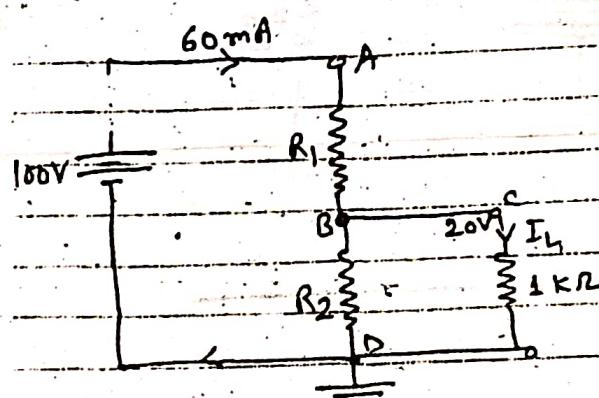
Discuss series LCR circuit and discuss the condition of resonance.

6. What is Ohm's law ? Draw circuit diagram to verify Ohm's law on the circuit.

- (i) find circuit current I .
- (ii) voltage of point A with respect to ground.
- (iii) voltage of point B with respect to A
- (iv) voltage of point B with respect to ground.



OR

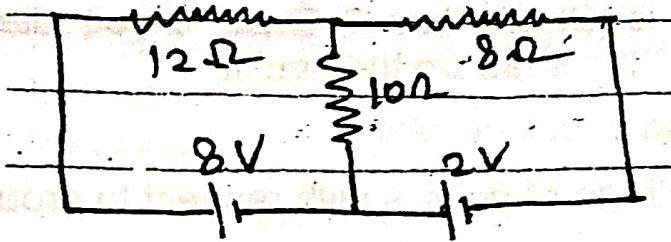


From above figure, find values of R_1 and R_2 if the voltage applied across load resistor of $1\text{ k}\Omega$ is to be 20 V : The maximum current which the battery can supply is 60 mA .

7. Write Kirchhoff's current and voltage law. Use Kirchhoff's laws to find the magnitude and direction of current flow through the 10Ω resistor of following figure :

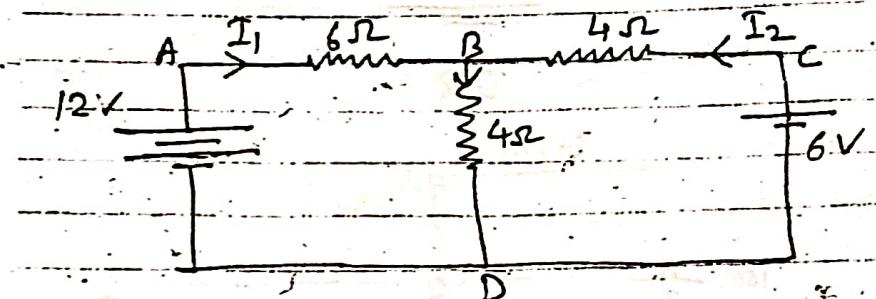
BCA-1/3

(3)



A) Based on Bingo to question (v)
OR
Bingo of question (ii) according to question (vi).

What is superposition theorem ? Use superposition theorem and calculate current in each Branch of the network shown in figure below :



Ques. 5. If the two components of a vector are 120° in phase and have magnitudes 5 and 12 respectively, find the resultant vector.

Ans. We consider two vectors of magnitude 5 and 12 respectively with angle of 120° between them. The resultant vector will be

BCA-1/4**B.C.A. First Semester Examination, 2023-24****Fourth Paper****Fundamentals of Programming****Time : 3 hours****Max. Marks : 60**

Note : Attempt all 7 questions. Section-A contains question no. 1 (comprising of very short answer type questions) which is compulsory and carries 6 marks. Section B contains question Nos. 2, 3 & 4 which are short answer type questions and carry 6 marks each. Section C contains question nos. 5, 6 & 7 which are long answer type questions carrying 12 marks each.

SECTION - A

1. Answer the following question:
 - (a) What is meant by compilation?
 - (b) What is the role of curly braces ({}) in a C-Program?
 - (c) Write about space requirement for variables of different data types

SECTION – B

2. Write a program to enter two numbers Make a comparison between them with a conditional operator. If the first number is greater than the second perform the multiplication otherwise division operation.

OR

Write an algorithm that reads N integer numbers and arrange them in ascending order using selection Sort.

3. What is an array ? How a single dimension and two dimension arrays are declared and initialized explain with suitable program.

OR

What is function? Explain different classification of user defined functions based on parameter passing and return type with examples

4. (a) Explain the difference between malloc() and calloc() function.

- (b) Explain the difference between break and continue statement with suitable program.

OR

- (a) Compare while and do-while loop.

- (b) Explain the difference between $i++$ & $+ + i$ statement with example.

SECTION-C

5. An electricity board charges the following rates for the use of electricity: for the first 200 units 80 paise per unit; for the next 100 units "90 paise per unit; beyond 300 units Rs 1 per unit. All users are charged a minimum of Rs. 100 as meter charge. If the total amount is more than Rs 400, then an additional surcharge of 15% of total amount is charged. Write a program to read the name of the user, number of units consumed and print out the charges.

OR

Write a c-program using structures to read, write, compute average - marks and display the students scoring above and below the average marks for a class of N students.

6. (a) What is a pointer ? Explain how the pointer variable declared and initialized. Write a programme to swap two number using pointers.
- (b) Write a program to find all palindrome number between 100 and 1000.

OR

- (a) Write a program to find factorial of all number between 2 to 20.

- (b) Write a program to copy one array into another using function in C.

7. Explain the following with suitable program (any two) :

- (a) switch case
 - (b) call by reference
 - (c) Union

How many additional ORs were open to patients?

Explain the following with suitable program (any two) :

- (a) If-else
 - (b) Static
 - (c) Call by value

100

1BCATH5

BCA-1/5

B.C.A. First Semester Examination, 2023-24

Fifth Paper

Communication Skills

Time : 3 hours

Max. Marks : 60

Note : Attempt all 7 questions. Section-A contains question no. 1 (comprising of very short answer type questions) which is compulsory and carries 6 marks. Section-B contains question Nos. 2, 3 & 4 which are short answer type questions and carry 6 marks each. Section C contains question nos. 5, 6 & 7 which are long answer type questions carrying 12 marks each.

SECTION - A

1. Do as directed :

- (a) Give two importance of communication.

- (b) Differentiate between advice & suggestion.
- (c) Define Kinesics and give an example of it.
- (d) What is public communication? Discuss with example.
- (e) Give an account of body language in terms of oral communication.
- (f) Write the names of types of official reports.

SECTION – B

2. Give an account of professional ethical conduct for a computer professional.

OR

Write all the objectives of communication you know? Explain any four of them.

3. Enumerate the differences between verbal & non-verbal communication.

OR

Describe the salient features and steps of make a powerpoint presentation.

4. Write the steps involved in the process of listening.

OR

- Write the names & their uses of the software of MS office suite.

SECTION - C

5. How many parts are there in a business letters? Discuss regarding the salient features, function, and kinds of business letters?

OR

Write a letter to the editor of a newspaper requesting to publish your article on, "Pros & cons of the use of technology".

6. Describe oral & written communication in internal as well as external communication.

OR

Describe the different levels of communication with their usage in the professional world.

(3)

7. Differentiate between upward and downward communication. Explain with reference to the process of communication.

OR

to show respect to your seniors and elders

Give an account of horizons, tone, frequency, rate, volume & depth in terms of oral communication.

OR

प्रदर्शन के रूप में संवाद का अवधारणा का विवर दीजिए।

OR

प्रतिक्रिया को उच्च स्तरीय व निम्न स्तरीय कहा जाता है। इसका विवर दीजिए।

B.C.A. First Semester Examination, 2023-24**COMPUTER APPLICATION**

AO

Sixth Paper**Business System****Time : 3 hours** **Max. Marks : 60**

Note : Attempt all 7 questions. Section-A contains question no. 1 (comprising of very short answer type questions) which is compulsory and carries 6 marks. Section B contains question Nos. 2, 3 & 4 which are short answer type questions and carry 6 marks each. Section C contains question nos. 5, 6 & 7 which are long answer type questions carrying 12 marks each.

SECTION - A

1. Explain briefly following:
 - (a) MIS
 - (b) DSS
 - (c) DFD
 - (d) Entity Relationship Diagram (ERD)

SECTION - B

2. What are the levels involved in any business organization and what types of information is required for management planning?

OR

What is a system? Also explain business system

3. What is processing? What are batch, online and real time modes of processing? What are the types of application where these can be utilized?

OR

What is a report? What are its advantages. What is the type of content stored inside header, footer and detail section?

4. Discuss different types of group functions which help us in calculating the different arithmetic task in the report.

OR

What is a file? What is the purpose of data file, object file, text file and executable file and where can these be utilized?

SECTION – C

5. (a) What are random files and sequential files?

Explain advantages and disadvantages of both.

(b) Define a payroll system. Explain how to get the information required to prepare payslip of an employee

OR

OR

(a) What is the layout of master file and transaction file, while designing the payroll system of an organization?

(b) What is financial accounting system? Discuss briefly.

6. (a) What is ERP? What are its different modules in a business organization?

(b) What is inventory control? Explain the features of a good inventory control system.

OR

- (a) What is an information system and its types?
Discuss about Office Automation System,
Transaction Processing System and
Knowledge Management System.
- (b) Discuss Inventory Management techniques
like VED, SDE and FSN?
7. (a) What is the relationship between knowledge
and information? Explain giving examples.
(b) What are the various modelling approaches?
Discuss using an example.

OR

- (a) What are the different phases of SDLC?
Explain briefly.
- (b) What is context diagram? Differentiate it from
Data Flow Diagram.

100

2BCATH3

BCA-2/3

BCA Second Semester Examination, 2023-24

COMPUTER APPLICATION

Third Paper

Digital Electronics and Computer Organization

Time : 3 hours

Max. Marks : 75

Note : Attempt all 7 questions. Section-A contains question no. 1 (comprising of very short answer type questions) which is compulsory and carries 6 marks. Section B contains question Nos. 2, 3 & 4 which are short answer type questions and carry 8 marks each. Section C contains question nos. 5, 6 & 7 which are long answer type questions carrying 12 marks each.

SECTION – A

1. Write short note on the following :

- (a) SSD
- (b) Cloud Storage
- (c) Light Pen

BCA-2/3

(1)

SECTION – B

- 2.** Explain Computer Generation in terms of hardware used.

OR

What is the difference between RAM and ROM ?

- 3.** Explain Half Adder with suitable diagram and truth table.

OR

What is Computer ? Write its characteristics also explain block diagram of computer.

- 4.** Explain the difference between Static Memory and Dynamic Memory.

OR

What is Flip-Flop ? Explain S-R Flip-Flop using proper circuit diagram.

SECTION – C

5. (a) Minimize the following Boolean function

$$F(A, B, C, D) = \sum m (1, 3, 4, 6, 8, 9, 11, 13, 15)$$

k-map

Also design its minimize expression circuit.

- (b) Explain Decoder with proper block diagram.

Also design it with the help of basic gates.

OR

- (a) Minimize the following Boolean function

$$F(A, B, C, D) = \sum m (1, 3, 4, 6, 9, 11, 12, 14)$$

Also design its minimize expression circuit.

- (b) What is Multiplexer ? Draw block diagram of Multiplexer. Design 8×1 multiplexer with the help of 4×1 multiplexer.

6. Simplify the following expression to sum of product using Quinne Mclusky Method
 $F(a, b, c, d) = \sum m (2, 6, 8, 9, 10, 11, 14, 15)$. Also draw its simplified expression circuit.

OR

Simplify the following expression to sum of product using Quinne Mclusky Method

$$F(a, b, c, d) = \sum m (0, 1, 2, 4, 6, 8, 9, 11, 13, 15).$$

Also draw its simplified expression circuit.

7. Explain the following any two :

(a) Cache Memory

(b) EEPROM

(c) Full Adder

OR

(a) Latches

(b) Half Subtractor

(c) Universal Gate