

BCA-1/6

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

COMPUTER APPLICATION**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**
- (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

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.

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

OR

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

BCA-1/4

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

Fourth Paper

Fundamentals of Programming

Time : 3 hours

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.

Max. Marks : 60**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

(1)

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

OR

Explain the following with suitable program (any two) :

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

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

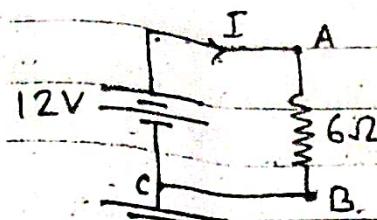
5. State and prove Thevenin theorem.

OR

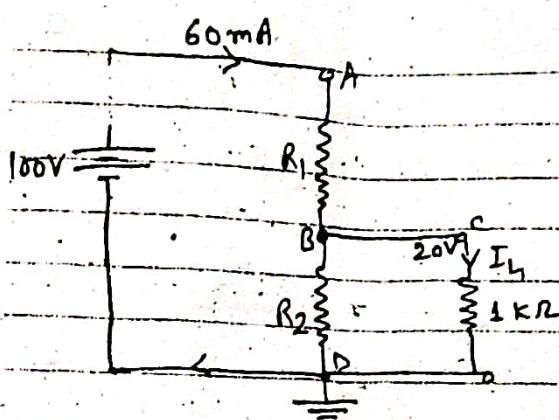
Discuss series LCR circuit and discuss the condition of resonance.

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

- find circuit current I .
- voltage of point A with respect to ground.
- voltage of point B with respect to A
- voltage of point B with respect to ground.



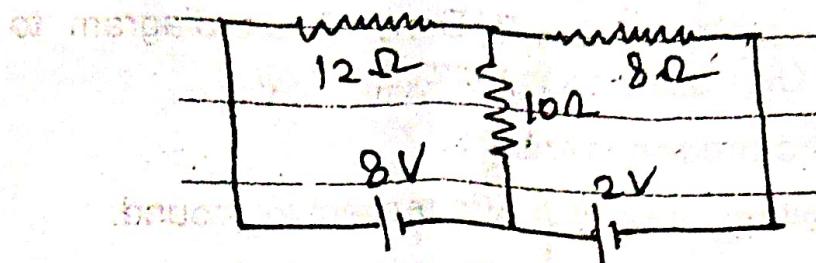
OR



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 20V : The maximum current which the battery can supply is 60 mA .

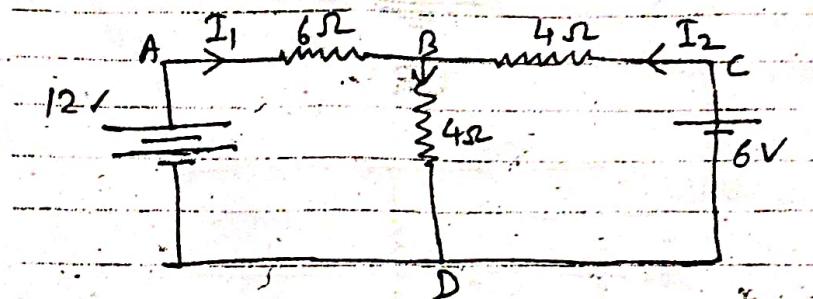
7. Write Kirchhoff's current and voltage law. Use Kirchhoff's laws to find the magnitude and direction of current flow through the 10Ω resistor of following figure:

BCA-1/3 (3)



OR

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



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.

(c) p-value

(d) Random-variable

SECTION - B

STATISTICAL DISTRIBUTION

2. Define exponential distribution and its properties.

OR

What is median ? Give its real life uses.

3. Define Poisson distribution and its properties.

OR

What is distribution function ? Mention its properties and uses.

4. For any two events A and B, prove that $P(A \cap B^c) = P(A) - P(A \cap B)$.

OR

Define unbiasedness and sufficiency. Also give one example of an estimator which is unbiased as well as sufficient.

SECTION - C

5. Define Pearson's correlation coefficient with its properties. (3)

OR

Compare various definition of probability.

6. Define binomial distribution with example. Find $E \frac{1}{X+1}$ when $X \sim B(n, p)$. (3)

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.
-

100

1BCATH1

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

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

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 :

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

- (b) Discuss existence theorem, with example.

OR

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

(b) Determine the Taylor series of the fun.

(3) $f(n) = \cos(4n)$ about $n=0$

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

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

OR

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

6

Evaluation

$$\int_0^1 n(1-n)^3 \, dn$$