

Exam. Code : 117901
Subject Code : 3524

Bachelor of Computer Application (BCA)
1st Sem. (Batch 2023-26) (CBGS)
APPLIED & DISCRETE MATHEMATICS
Paper—III

Time Allowed—3 Hours] [Maximum Marks—75

Note :— Attempt **FIVE** questions in all, selecting at least **ONE** question from each section. The fifth question may be attempted from any section. All questions carry equal marks.

SECTION—A

1. (i) (a) If $A = [1, 3, 5, 7, 9]$, $B = [2, 4, 6, 8, 10]$,
 $C = [1, 2, 3, 4]$ Show that $A \cap (B - C) \neq A - (B \cap C)$.
- (b) $A = [1, 2, 3, 4, 5]$, $B = [1, 3, 5, 7, 9]$, $C = [2, 4, 8, 10]$ Verify that $A \cap (B \cup C) = (A \cap B) \cup (A \cap C)$. 3+3
- (ii) In a town with a population of 3000, 2200 persons read the Tribune, 1000 read the Indian Express and 300 read both. Find how many read neither. 5

(iii) If $A = [1, 4, 6, 5]$, $B = [5, 9, 11]$ verify that
 $A \cap (B - A) = \phi$. 4

2. (i) Let $A = \left[\frac{1}{2}, 2 \right]$, $B = [2, 3, 5]$, $C = [-1, -2]$. Verify
that $A \times (B \cup C) = (A \times B) \cup (A \times C)$. 7

(ii) Define (a) set (b) relation, each with example. 2

(iii) Let $A = [1, 2, 3]$, $B = [2, 3, 4]$, $C = [4, 5]$. Verify
that $A \times (B \cap C) = (A \times B) \cap (A \times C)$. 6

SECTION—B

3. (i) Check whether the following statement is tautology
 $[(p \rightarrow q) \wedge (q \rightarrow r)] \rightarrow (p \rightarrow r)$. 7

(ii) Over the universe of books. Define the proposition

$B(x)$: x has a blue cover

$M(x)$: x is a Mathematics book

$U(x)$: x is published in United States. Translate the
following :

(a) $(\exists x) (M(x) \wedge \sim B(x))$

(b) $(\forall x) (M(x) \wedge U(x) \rightarrow B(x))$

(c) $(\exists x) (\sim B(x))$ 8

4. (i) Distinguish quantifier and predicates. 4
- (ii) Give an example of tautology, contradiction, contingency with the help of truth table. 3
- (iii) Determine the validity of following argument with the help of truth table :
- (a) If a man is bachelor, then he is unhappy
- (b) If a man is unhappy then he dies young
- (c) Therefore, bachelor die young. 8

SECTION—C

5. (i) State and explain representation theorem. 10
- (ii) Minimize : $Y(A, B, C, D) = \Sigma m(1, 3, 7, 11, 15) + \Sigma(0, 2, 5)$. 5
6. (i) Convert the following boolean expression into DN form : $[(xy^c)^c + z^c] \cdot (x^c + z)^c$. 7
- (ii) Discuss various types of grouping existing in K-map of two variables and verify result. 8

SECTION—D

7. (i) If $A = \begin{vmatrix} 1 & 0 & 2 \\ 0 & 2 & 1 \\ 2 & 0 & 3 \end{vmatrix} =$, find $A^3 - 6A^2 + 7A + 2I$. 7.5

(ii) Find inverse of given matrix :

$$A = \begin{vmatrix} 1 & 2 & 2 \\ 2 & 1 & 2 \\ 2 & 2 & 1 \end{vmatrix}. \quad 7.5$$

8. (i) Express the following matrix into sum of symmetric and skew symmetric matrix :

$$A = \begin{vmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{vmatrix}. \quad 7.5$$

(ii) Solve the following linear equations by matrix inversion method :

$$3x + y + 2z = 3$$

$$2x - 3y - z = -3$$

$$x + 2y + z = 4$$

7.5

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**Bachelor of Computer Application (BCA) 1st Semester
(Batch 2023-26) (CBGS)**

PUNJABI COMPULSORY

Paper-VI (i)

Time Allowed—3 Hours] [Maximum Marks—100

ਨੋਟ :— ਹਰੇਕ ਭਾਗ ਵਿੱਚੋਂ ਘੱਟੋ-ਘੱਟ ਇੱਕ ਪ੍ਰਸ਼ਨ ਦੀ ਚੋਣ ਕਰਦੇ ਹੋਏ, ਕੁੱਲ ਪੰਜ ਪ੍ਰਸ਼ਨ ਕਰੋ। ਪੰਜਵਾਂ ਪ੍ਰਸ਼ਨ ਕਿਸੇ ਵੀ ਭਾਗ ਵਿੱਚੋਂ ਕੀਤਾ ਜਾ ਸਕਦਾ ਹੈ। ਸਾਰੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਅੰਕ ਬਰਾਬਰ ਹਨ।

ਭਾਗ—ੳ

1. ਨਿਮਨ ਕਾਵਿ-ਟੋਟੇ ਦੀ ਪ੍ਰਸੰਗ ਸਹਿਤ ਵਿਆਖਿਆ ਪੇਸ਼ ਕਰੋ :
ਮਾਂ ਵਰਗਾ ਘਣ-ਛਾਵਾਂ ਬੂਟਾ,
ਮੈਨੂੰ ਨਜ਼ਰ ਨਾ ਆਏ।
ਲੈ ਕੇ ਜਿਸ ਤੋਂ ਛਾਂ ਉਧਾਰੀ,
ਰੱਬ ਨੇ ਸੁਰਗ ਬਣਾਏ।
ਬਾਕੀ ਕੁਲ ਦੁਨੀਆਂ ਦੇ ਬੂਟੇ,
ਜੜ੍ਹ ਸੁਕਿਆਂ ਮੁਰਝਾਂਦੇ।
ਐਪਰ ਫੁੱਲਾਂ ਦੇ ਮੁਰਝਾਇਆਂ
ਇਹ ਬੂਟਾ ਸੁਕ ਜਾਏ।
2. ਕਵਿਤਾ 'ਆਖਾਂ ਵਾਰਸ਼ ਸ਼ਾਹ ਨੂੰ' ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ ਲਿਖੋ।

ਭਾਗ—ਅ

3. 'ਦੂਜਾ ਵਿਆਹ' ਇਕਾਂਗੀ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ ਪੇਸ਼ ਕਰੋ।
4. ਰਾਮ ਭਜਨੀ ਜਾਂ ਸੁਖਦੇਵ ਸਿੰਘ ਦਾ ਪਾਤਰ ਚਿਤਰਨ ਉਲੀਕੋ।

ਭਾਗ—ਬ

5. ਕਿਸੇ ਇੱਕ ਵਿਸ਼ੇ 'ਤੇ ਪੈਰਾ ਰਚਨਾ ਕਰੋ :
 - (1) ਮਾਤ ਭਾਸ਼ਾ
 - (2) ਲਾਇਬ੍ਰੇਰੀ ਦਾ ਮਹੱਤਵ
 - (3) ਮੇਰਾ ਜੀਵਨ ਉਦੇਸ਼।
6. ਨਿਮਨਲਿਖਤ ਪੈਰੇ ਨੂੰ ਪੜ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਉੱਤਰ ਦਿਓ :

ਵਾਰਸ ਸ਼ਾਹ ਤੋਂ ਪਹਿਲਾਂ ਹੀਰ-ਰਾਂਝੇ ਦੀ ਕਹਾਣੀ ਨੂੰ ਦਮੋਦਰ, ਅਹਿਮਦ ਤੇ ਮੁਕਬਲ ਨੇ ਕਾਵਿ-ਬੱਧ ਕੀਤਾ। ਵਾਰਸ ਨੂੰ ਦਮੋਦਰ ਤੇ ਮੁਕਬਲ ਦਾ ਸੁਖਾਂਤ ਚੰਗਾ ਨਾ ਲੱਗਾ, ਉਸ ਨੇ ਕਹਾਣੀ ਨੂੰ ਦੁਖਾਂਤ ਬਣਾਇਆ। ਵਾਰਸ ਦੇ ਕਿੱਸੇ ਵਿੱਚ ਹੀਰ ਅਤੇ ਰਾਂਝਾ ਕੋਟ ਕਬੂਲੇ ਤੋਂ ਝੰਗ ਆਉਂਦੇ ਹਨ। ਹੀਰ ਦੇ ਮਾਪੇ ਰਾਂਝੇ ਨੂੰ ਜੰਵ ਲਿਆਉਣ ਲਈ ਕਹਿੰਦੇ ਹਨ ਤਾਂ ਜੋ ਵਿਆਹ ਦੀਆਂ ਪੂਰੀਆਂ ਰੀਤਾਂ ਨੂੰ ਨਿਭਾਇਆ ਜਾਵੇ। ਰਾਂਝਾ ਜੰਵ ਲਿਆਉਣ ਲਈ ਤਖ਼ਤ ਹਜ਼ਾਰੇ ਪੁੱਜਦਾ ਹੈ। ਏਧਰ ਹੀਰ ਨੂੰ ਜ਼ਹਿਰ ਦੇ ਕੇ ਮਾਰ ਦਿੱਤਾ ਜਾਂਦਾ ਹੈ। ਰਾਂਝਾ ਹੀਰ ਦੀ ਕਬਰ ਉੱਤੇ ਪੁੱਜਦਾ ਹੈ ਤੇ ਢੇਰੀ ਹੋ ਜਾਂਦਾ ਹੈ।

ਪ੍ਰਸ਼ਨ :

- (1) ਵਾਰਸ ਤੋਂ ਪਹਿਲਾਂ ਹੀਰ-ਰਾਂਝੇ ਦਾ ਕਿੱਸਾ ਕਿਸ ਨੇ ਲਿਖਿਆ ?

- (2) ਵਾਰਸ ਨੇ ਹੀਰ-ਰਾਂਝੇ ਦੀ ਕਹਾਣੀ ਨੂੰ ਕਿਉਂ ਦੁਖਾਂਤ ਵਿੱਚ ਲਿਖਿਆ ?
- (3) ਵਾਰਸ ਨੇ ਕਿੱਸੇ ਦਾ ਅੰਤ ਕਿਵੇਂ ਕੀਤਾ ?
- (4) ਹੀਰ ਤੇ ਰਾਂਝਾ ਵਾਰਸ ਦੇ ਕਿੱਸੇ ਵਿੱਚ ਕਿਥੋਂ ਆਉਂਦੇ ਹਨ ?
- (5) ਇਸ ਪੈਰ੍ਹੇ ਦਾ ਸਿਰਲੇਖ ਲਿਖੋ।

ਭਾਗ—ਸ

7. ਮਾਝੀ ਉਪਭਾਸ਼ਾ ਦੇ ਪਛਾਣ ਚਿੰਨ੍ਹ ਲਿਖੋ।
8. ਪੰਜਾਬੀ ਦੇ ਨਿਕਾਸ ਤੇ ਵਿਕਾਸ ਬਾਰੇ ਚਰਚਾ ਕਰੋ।

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Bachelor of Computer Application (BCA) 1st Sem.

(Batch 2023-26) (CBGS)

**INTRODUCTION TO COMPUTERS AND
INFORMATION TECHNOLOGY**

Paper—II

Time Allowed—3 Hours]

[Maximum Marks—75

Note :— Attempt **FIVE** questions in all, selecting at least **ONE** question from each section. The fifth question may be attempted from any section. All questions carry equal marks.

SECTION—A

1. What is a computer ? Explain its functional units.
2. What is an application ? How are they classified ?

SECTION—B

3. Explain how does a bar-code reader work.
4. What is printer ? What aspects will you keep in mind for purchasing a printer for home use ?

SECTION—C

5. What are optical storage devices ? Explain in general how is data read/write on these devices ?
6. Explain any five sub-options of the file menu of a word processor of your choice.

SECTION—D

7. Write the steps to insert a song in your presentation.
8. Explain how will you find sum of each row and each column of a given table having 2 columns and 10 rows.

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Subject Code: 3522

Bachelor of Computer Application (BCA) 1st Sem.

(Batch 2023-26) (CBGS)

INTRODUCTION TO PROGRAMMING C

Paper—I

Time Allowed—3 Hours]

[Maximum Marks—75

Note :— Attempt **FIVE** questions in all, selecting at least **ONE** question from each section. The fifth question may be attempted from any section. All questions carry equal marks.

SECTION—A

1. What is difference between keyword, data type, constant, variable and expression ? Give an example of each.
2. Explain different types of operators available in C. Explain any four types. Also write about operator precedence.

SECTION—B

3. Write a program to find the roots of a quadratic equation.
4. Explain the differences between switch, break and continue statements.

SECTION—C

5. Which are different ways to pass arguments to a function ?
Give differences between call by value and call by reference.
6. Write a program to sort an array of n elements in descending order.

SECTION—D

7. Which are different types of user-defined data-types in C ? Give an example of each. Also give various differences between these.
8. What is a pointer ? Which are various uses of pointers ?
Which are different types of pointers ?

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Subject Code: 3525

**Bachelor of Computer Application (BCA) Ist Semester
(Batch 2023-26) (CBGS)**

**ENL-121: COMMUNICATION SKILLS IN ENGLISH-I
Paper—V**

Time Allowed—3 Hours]

[Maximum Marks—100

Note :— Attempt **FIVE** questions in all, selecting at least **ONE** question from each section. The fifth question may be attempted from any section. All questions carry equal marks.

SECTION—A

1. If you choose the appropriate reading skill, it will enhance the reading process and help you in achieving your goal. Discuss in detail.
2. What are the tactics and strategies to enhance your reading skills? Discuss in detail

SECTION—B

3. Read the comprehension and answer the following questions :

The impact of technical advancement in armaments on man, needs to be analyzed with a rational mind and heart free from prejudices of any kind towards modernization.

The most noticeable impact of this development certainly has been the loss of immunity from violence for successive generations ever since the invention of gunpowder. In modern times the presence of technically advanced arms, not only at the fronts but also among the civilian population has vastly undermined the value of human life, and endangered the very entity of those virtues of self restraint and discretion, on which a peaceful and amiable society rests. However an unbiased view of the present scenario, would refrain one from attributing the rising trends of violence to the availability of technically superior weapons, for one must not overlook the fact that Necessity is the mother of invention. Every stage in the development of armaments has been marked by its distinct impact on society. When the man fought with stones and with his bare hands, the society was not yet compact. The discovery of metal and the use of spears, knives and arrows indicate the stage of the formation of small kingdoms. Fire continued to be an effective weapon of destruction. When man introduced the cavalry into the army and improved the strategies of making war, some small kingdoms gave away to form empires, but with no revolutionary advances in armaments forthcoming, the political structure of society remained more or less stagnant for many centuries to come. The next significant development was the use of gunpowder which could be used to perform acts which were then thought to be impossible. Gunpowder was used

to form the ammunition of several guns and cannons. This sudden advances in weaponry not only facilitated the control of a large mass of people by relatively few armed men that helping to form strong empires, but the availability of the new technology to few selected nations enabled the formation of colonies in continents which did not have access to the modernized technologies of warfare. Modern technological advances in armaments aided the formation of nation states in Europe. The extensive use of the fire-power lent a lethal edge to the naval power which proved to be the greatest asset to any nation in the 19th century. Small United Nations States of Europe with strong navies, modern arms and disciplined men gained control of foreign lands in foreign continents far greater in areas than their parent countries.

- (i) Necessity is the mother of invention means
 - (a) where there is mother there is invention
 - (b) when necessity arises invention is done
 - (c) most of the inventions are preplanned
 - (d) nothing happens without creating congenial environment 2
- (ii) The invention of modern weapons have resulted into
 - (a) loss of immunity from war in the society
 - (b) successive wars for the last two centuries.
 - (c) arms race among the nations
 - (d) loss of life and property every now and then

2

- (iii) Small kingdoms turned into big empires, after
- (a) the invention of cavalry and cannons and its introduction into the army.
 - (b) the introduction of nuclear arms into the army
 - (c) the end of the use of knives, arrows and swords
 - (d) the end of the 19th century 2
- (iv) The style of the passage is
- (a) informative
 - (b) analytical
 - (c) retrospective
 - (d) provocative 2
- (v) Rewrite the passage in your own words and also provide a suitable title and its justification for the passage. 2

4. What are the main strategies to understand details, coherence and meaning in a passage ? Discuss in detail.

SECTION —C

5. Write a letter to your friend telling him about the importance of computer education to be successful in life.
6. What is the role of effective writing skills in getting a good job in Government sector ? Discuss in detail.

SECTION—D

7. Write a Resume for the post of Bank PO.
8. Draft a Report regarding the effects of drug addiction on students.