Exam. Code : 117901
Subject Code : 501076

Bachelor of Computer Application (BCA) (Hons.)

1st Sem. (Batch 2025-29) (CBGS)

INTRODUCTION TO PROGRAMMING USING PYTHON

Paper : BCA01010T

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. (a) Discuss the features of Python for problem solving. Write a simple Python program that takes character input from a user. 7.5

   (b) Explain the core components of Python program structure. 7.5

2. (a) How Python IDE and Interpreter are used for execution? Explain. 7.5

   (b) Explain the significance of comments and indentation using Python. 7.5

SECTION—B

3. (a) Explain Data types of Python and illustrate their use. 7.5

   (b) Illustrate the use of For control structure through Python program. 7.5

4. (a) Write a program in Python to find count of odd numbers from a list of numbers. 7.5

   (b) How break and continue statements are used by Python programs? Illustrate. 7.5

SECTION—C

5. (a) Discuss the process of using Python modules and their purpose. 7.5

   (b) How recursive functions are used for problem solving using Python? Illustrate. 7.5

6. (a) How functions are called and passed by Python programs? Illustrate. 7.5

   (b) Discuss the role of exception handling and its types. 7.5

SECTION—D

7. Discuss the following with examples :

   (a) Strings processing 7.5

   (b) Data processing 7.5

8. How the files are processed using Python? Discuss the use of write() and writelines() functions. 15

Exam. Code : 117901
Subject Code : 800170

Bachelor of Computer Application (BCA) (Hons.)
1st Semester (Batch 2024-28) (CBGS)
BCA01007T : PRINCIPLES OF DIGITAL ELECTRONICS

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. (A) Convert $(52.75)_{10}$ to equivalent binary, octal, and hexadecimal numbers.

   (B) What is the use of 2's complement form? Find 2's complement of $(101011)_2$.

2. What is the use of error detection codes? Explain different error detection techniques.

SECTION—B

3. What are universal gates? Why are they called so? Explain NAND and NOR as universal gates.

4. What is k-map? Write its advantages and disadvantages. Simplify the following Boolean expression using k-map.

$$F(A,B,C) = \overline{A}\,\overline{B}\,\overline{C} + \overline{A}BC + \overline{A}B\overline{C}$$

SECTION—C

5. Draw and explain half and full subtractor.

6. What is the use of flip-flop? Explain the working of different types of flip-flops.

SECTION—D

7. What are semiconductor memories? Write differences between RAM and ROM chips.

8. Write notes on the following:

   (a) Address selection logic

   (b) Static and dynamic RAM

   (c) PROM and EPROM.

Exam. Code : 117901
Subject Code : 800172

Bachelor of Computer Application (BCA)

1st Semester (Batch 2023-26) (CBGS) (Old Sylb)

INTRODUCTION TO COMPUTERS AND INFORMATION TECHNOLOGY

Paper : BCA01002T

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 are batch oriented, online, and real time systems? Give examples.

2. Which are various applications of computers in the fields of entertainment and education?

SECTION—B

3. What are applications of MICR, OMR, OCR and Bar Code Reader?

4. (a) What do you mean by screen assisted data entry? How does it work?

   (b) What are vision input systems?

SECTION—C

5. How do primary and secondary memory differ? What are various devices used in both?

6. What is the meaning of importing, exporting and inserting files in MS-Word? Write the steps of each.

SECTION—D

7. Which are different types of in-built functions available in MS-Excel?

8. Why might you need to add audio and video in your presentation? Write the steps to add audio, video, and images in a presentation in MS-PowerPoint.

Exam. Code : 505601
Subject Code : 505529

Certificate in Computer Applications (Full Time)

1st Semester (Batch 2025-26) (CBGS)

INFORMATION TECHNOLOGY AND OPERATING SYSTEM

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. What are main characteristics of a LAN? For what type of applications LAN is used?
2. Define the term information. What are the steps involved in processing information?

SECTION—B

3. How are we using the internet in our day-to-day life? Discuss.
4. What is an e-mail? What are the various parts of an e-mail?

SECTION—C

5. How is application software different from system software? Also, write a note on Data communication equipment.

6. Give the classification of programming languages.

SECTION—D

7. Compare single-user and multi-user operating systems in terms of functionality and performance.

8. Explain the process of booting a system.

Exam. Code : 117901
Subject Code: 501070

Bachelor of Computer Application (BCA) (Hons.)
1st Sem. (Batch 2025-29) (CBGS)

COMMUNICATION SKILLS IN ENGLISH–I

Paper : ENL-121

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. How is reading a complex process? Discuss in detail the steps involved in the reading process.

2. What are the different reading tactics and strategies?

SECTION—B

3. Read the following passage carefully and tick the correct answer:

   Misers are generally characterized as men without honour or without respect or without humanity who like only to accumulate wealth and to this passion sacrifice every other happiness. They have been described as Mad Men who, in the midst of abundance, banish every pleasure and make from imaginary wants real necessities. But few, very few, correspond to this exaggerated picture and perhaps there is

not one to be found anywhere. Instead of this, we find the noble and industrious branded by the vain and the idle with the odious appellation; men who by the way frugality and labour raise themselves above their equals and contribute their share of industry to the common stock. Whatever the vain or ignorant may say, well were it for society had we more of this character among us. In general, these close men are found at least the true benefactors of society. With an avaricious man we seldom lose in our dealing: But too frequently in our Commerce with prodigality.

(1) What is the general view about misers?

(a) They hate wealth

(b) They are in love with wealth

(c) They have honour, respect and humanity

(d) They are passionate about happiness

(2) Tick the correct answer:

(a) Misers live in abundance

(b) They enjoy themselves

(c) They do not have wants

(d) They are considered sane

(3) Tick the correct choice:

(a) This is a real picture of misers

(b) They are found everywhere as such

(c) The noble and industrious are not misers

(d) Real misers add nothing to society

(4) Tick the correct option:

(a) Frugal persons benefit society

(b) We do not need them

(c) A prodigal person wastes nothing

(d) A frugal person does not labour

(5) Frugality means:

(a) economy

(b) poverty

(c) extravagance

(d) breakable

4. Read the following passage carefully and answer the questions that follow:

Tolerance, non-violence and peaceful public discussion of various issues are among the principal traits of a democratic set-up. But of late, violence has been increasing sharply, tainting the polity to a disconcerting degree. Democracy, the rule of the people, is undeniably the only way to govern a country such as India with its immense diversity, many religions and languages. But the spectacle of Parliamentarians and State legislators indulging in violence is a sad reflection on the Indian polity. If tolerance of other's opinions, non-secular actions and similar other factors are not kept away from Politics, there would be a great danger to democracy. There is little doubt that violence, whatever shape it takes - communal, political or other - indicates a breakdown of the State. It also manifests fragility and indefensible weakness of

the social order. It points to a lack of sound character, a flaw in the mental makeup of people, a rashness of temperament and lack of mental balance. It is a ticket to nowhere. In fact, it spells relation of the worst type. It solves no problem, mends no situation.

Questions:

(a) What principal traits of a democratic setup does the writer mention?

(b) How is democracy defined in the passage?

(c) Why is democracy the most suitable way to govern India?

(d) What does violence indicate?

(e) Does violence lead us anywhere?

SECTION—C

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

6. Write an application along with a resume to a medical firm for the job of a Medical Representative.

SECTION—D

7. Draft a memorandum to one of the marketing officers who has been falling short of targets in the recent past.

8. Discuss the structure and planning of a business letter.

Exam. Code : 117901
Subject Code : 501071

Bachelor of Computer Application (BCA) (Hons.)
1st Semester (Batch 2025-29) (CBGS)

PUNJABI COMPULSORY-I

Paper : PBL-601

Time Allowed—3 Hours] [Maximum Marks—100

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

सैकशन—ए

1. ਹੇਠ ਲਿਖੀਆਂ ਕਾਵਿ-ਸਤਰਾਂ ਦੀ ਪ੍ਰਸੰਗ-ਸਹਿਤ ਵਿਆਖਿਆ ਕਰੋ :

ਵਿਹੁ-ਵਲਿੱਸੀ ਵਾ ਫਿਰ ਵਣ ਵਣ ਜੱਗੀ ਜਾ
ਉਹਨੇ ਹਰ ਇਕ ਵਾਂਗ ਦੀ ਵੰਝਲੀ ਦਿੱਤੀ ਨਾਗ ਬਣਾ
ਪਹਿਲਾ ਡੰਗ ਮਦਾਰੀਆਂ ਮੰਤ੍ਰ ਗਏ ਗੁਆਚ
ਦੂਜੇ ਡੰਗ ਦੀ ਲਗ ਗਈ ਜਣੇ ਖਣੇ ਨੂੰ ਲਾਗ
ਲਾਗਾਂ ਕੀਲੇ ਲੋਕ-ਮੂੰਹ ਬੱਸ ਫਿਰ ਡੰਗ ਹੀ ਡੰਗ
ਪਲੋ ਪਲੀ ਪੰਜਾਬ ਦੇ ਨੀਲੇ ਪੈ ਗਏ ਅੰਗ
ਗਲਿਓਂ ਟੁੱਟੇ ਗੀਤ ਫਿਰ ਤ੍ਰੱਕਲਿਉਂ ਟੁੱਟੀ ਤੰਦ
ਤ੍ਰਿੰਜਣੋਂ ਟੁੱਟੀਆਂ ਸੰਹਲੀਆਂ ਚਰੱਖੜੇ ਘੂਕਰ ਬੰਦ।

2. 'ਸਭ ਤੋਂ ਖ਼ਤਰਨਾਕ' ਕਵਿਤਾ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ ਲਿਖੋ।

ਸੈਕਸ਼ਨ—ਬੀ

3. 'ਅੱਖ ਅੱਗੇ ਕੱਖ' ਇਕਾਂਗੀ ਦਾ ਵਿਸ਼ਾ-ਵਸਤੂ ਲਿਖੋ।

4. 'ਬੇਬੇ ਰਾਮ ਭਜਨੀ' ਇਕਾਂਗੀ ਦੇ ਪਾਤਰ-ਚਿਤਰਨ ਦੇ ਪੱਖ 'ਤੇ ਨੋਟ ਲਿਖੋ।

ਸੈਕਸ਼ਨ—ਸੀ

5. ਹੇਠ ਲਿਖਿਆਂ ਵਿੱਚੋਂ ਕਿਸੇ **ਇੱਕ** ਵਿਸ਼ੇ. 'ਤੇ ਪੈਰ੍ਹਾ ਰਚਨਾ ਕਰੋ :

   (ੳ) ਫੈਸ਼ਨ

   (ਅ) ਵਿਦਿਆਰਥੀ ਜੀਵਨ

   (ੲ) ਪੰਜਾਬ ਦੇ ਤਿਉਹਾਰ।

6. ਹੇਠ ਲਿਖੇ ਪੈਰ੍ਹੇ ਨੂੰ ਪੜ੍ਹ ਕੇ ਪ੍ਰਸ਼ਨਾਂ ਦੇ ਸੰਖੇਪ ਉੱਤਰ ਦਿਉ :

   ਚੰਗਾ ਦਿਮਾਗ ਤੇ ਚੰਗਾ ਦਿਲ ਅਰੋਗ ਸਰੀਰ ਵਿੱਚ ਹੀ ਰਹਿ ਸਕਦੇ ਹਨ। ਉਹੀ ਮਨੁੱਖ ਪੂਰਨ ਆਖਿਆ ਜਾ ਸਕਦਾ ਹੈ ਜਿਸਦਾ ਸਰੀਰ, ਦਿਮਾਗ ਤੇ ਮਨ ਪੂਰੀ ਤਰ੍ਹਾਂ ਵਿਕਸਿਤ ਹੋਵੇ। ਪੜ੍ਹਾਈ ਦੇ ਨਾਲ-ਨਾਲ ਖੇਡਾਂ ਸਰੀਰ ਨੂੰ ਸਿਹਤਮੰਦ ਰੱਖਣ ਲਈ ਅਤਿ ਲੋੜੀਦੀਆਂ ਹਨ। ਖੇਡਾਂ ਸਰੀਰ ਨੂੰ ਹੀ ਅਰੋਗ ਨਹੀਂ ਕਰਦੀਆਂ ਬਲਕਿ ਆਦਮੀ ਦਾ ਆਚਰਨ ਵੀ ਸੰਵਾਰਦੀਆਂ ਹਨ। ਕੁਰਬਾਨੀ, ਹਿੰਮਤ, ਹੁਕਮ ਮੰਨਣ ਦੇ ਗੁਣ ਖਿਡਾਰੀ ਵਿੱਚ ਭਰੇ ਜਾਂਦੇ ਹਨ। ਇਹੋ ਉਸਨੂੰ ਚੰਗਾ ਖਿਡਾਰੀ ਬਣਾਉਂਦੇ ਹਨ। ਖੇਡਾਂ ਉਹ ਕੁਝ ਸਿਖਾਉਂਦੀਆਂ ਹਨ ਜੋ ਨਿਰੀ ਪੜ੍ਹਾਈ ਨਹੀਂ ਸਿਖਾ ਸਕਦੀ।

   (ੳ) ਅਰੋਗ ਸਰੀਰ ਵਿੱਚ ਕਿਸਦਾ ਵਾਸ ਹੁੰਦਾ ਹੈ ?

(ਅ) ਪੂਰਨ ਮਨੁੱਖ ਕਿਸਨੂੰ ਕਿਹਾ ਜਾ ਸਕਦਾ ਹੈ ?

(ਏ) ਚੰਗੇ ਖਿਡਾਰੀ ਦੇ ਗੁਣ ਕਿਹੜੇ ਹਨ ?

(ਸ) ਲਕੀਰੇ ਸ਼ਬਦਾਂ ਦੇ ਅਰਥ ਦੱਸੋ।

(ਹ) ਪੈਰ੍ਹੇ ਦਾ ਢੁੱਕਵਾਂ ਸਿਰਲੇਖ ਲਿਖੋ।

ਸੈਕਸ਼ਨ—ਡੀ

7. ਭਾਸ਼ਾ ਅਤੇ ਉਪਭਾਸ਼ਾ ਵਿਚਕਾਰ ਅੰਤਰ ਸਪੱਸ਼ਟ ਕਰੋ।

8. ਪੰਜਾਬੀ ਭਾਸ਼ਾ ਦੇ ਨਿਕਾਸ ਅਤੇ ਵਿਕਾਸ 'ਤੇ ਨੋਟ ਲਿਖੋ।

Exam. Code : 117901
Subject Code : 501069

Bachelor of Computer Application (BCA) (Hons.)

1st Semester (Batch 2025-29) (CBGS)

APPLIED AND DISCRETE MATHEMATICS

Paper : BCA01003T

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. Let $A = \{1, 2, 3, 4\}$; $B = \{4, 6, 7, 8\}$; $C = \{2, 4, 6, 8\}$. Verify the following identities :

   (a) $(A \cup B) \cup C = A \cup (B \cup C)$. 10

   (b) $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$. 10

2. (a) If A and B be two non-empty subsets then show that $A \times B = B \times A$ iff $A = B$. 10

(b) Give an example of each of the relation which is :

(i) Reflexive but not Symmetric. 5

(ii) Both Reflexive and Symmetric. 5

SECTION—B

3. (a) Find the truth tables of the following:

(i) $p \wedge (q \vee r)$. 7

(ii) $(p \wedge q) \vee (p \wedge r)$. 7

(b) Verify that the proposition $p \vee \sim (p \wedge q)$ is a tautology. 6

4. (a) Prove the distributive law :

$p \vee (q \wedge r) \equiv (p \vee q) \wedge (p \vee r)$. 10

(b) Show that :

(i) $p \vee q \equiv q \vee p$. 5

(ii) $\sim (p \vee q) \equiv \sim p \wedge \sim q$. 5

Here $\sim$, $\wedge$ and $\vee$ represents the negation, conjunction, and disjunction, respectively.

SECTION—C

5. (a) Describe the Boolean algebra B with two elements 0 and 1. 5

(b) Consider the Boolean algebra D_{70} under the operations +, · and ' defined by

$a + b$ = l.c.m. (a, b); $a \cdot b$ = g.c.d. (a, b) and $a' = \frac{70}{a}$. Find the value of

(i) $x = 35 * (2 + 7')$. 5

(ii) $y = (35 * 10) + 14'$. 5

(iii) $z = (2 + 7) * (14 * 10)'$ 5

6. Use Karnaugh maps to find the prime implicants and minimal form for each of the following Boolean expressions:

(a) $E_1(x, y) = xy + xy'$. 6

(b) $E_2(x, y) = xy + x'y'$. 7

(c) $E_3(x, y) = xy + x'y + xy'$. 7

SECTION—D

7. (a) If $A=\begin{bmatrix}1 & 2\\ -2 & 3\end{bmatrix}$; $B=\begin{bmatrix}2 & 1\\ 2 & 3\end{bmatrix}$ and $C=\begin{bmatrix}-3 & 1\\ 2 & 0\end{bmatrix}$.

Verify that (AB)C = A(BC). 12

(b) Find x, y, z, and w given that :

$$3\begin{bmatrix}x & y\\ z & w\end{bmatrix}=\begin{bmatrix}x & 5\\ -1 & 2w\end{bmatrix}+\begin{bmatrix}6 & x+y\\ z+w & 5\end{bmatrix}.$$ 8

8. Verify Cayley Hamilton theorem for the matrix

$$A=\begin{bmatrix}2 & -1 & 1\\ -1 & 2 & -1\\ 1 & -1 & 2\end{bmatrix}.$$ 20