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( 1st Semester )

BACHELOR OF COMPUTER APPLICATION

Paper No. : BCA-101 (OC)

( **English Language and Communication Skills** )

( Old Course )

Full Marks : 75

Time : 3 hours

*The figures in the margin indicate full marks  
for the questions*

1. Answer any *two* from the following questions : 10×2=20
- (a) Describe the process of communication explaining clearly the function of each.
  - (b) Discuss the importances of communicative skills in computer profession.
  - (c) Explain the ways for breaking barriers to communication.
  - (d) What do you understand by non-verbal communication? Discuss each role of non-verbal cues in oral communication.

2. Underline the clause and mention the kind of each : 1×5=5
- (a) She responded when we addressed her.
  - (b) Whoever needs a place to stay is welcomed.
  - (c) The key was where I had left it.
  - (d) The house where I grew up has been sold.
  - (e) The plane, which had a damaged tail fin had landed.
3. State whether the following sentences are simple, compound or complex : 1×5=5
- (a) The boat was loaded with passengers, and it was time for it to sail.
  - (b) Although he needed help, he was reluctant to ask since he felt proud.
  - (c) The house must be cleaned and decorated.
  - (d) Mary and John are coming home.
  - (e) I gave him money because he needed it.
4. Change the voice : 1×5=5
- (a) The cranky child was put to bed by the mother.
  - (b) Donna was navigating the boat.

( 3 )

- (c) I can manage the house.
- (d) The dish has been broken.
- (e) Switch on the light.

5. Change the speech : 1×5=5

- (a) The visitor said to me, "Is your father at home?"
- (b) The man said, "How stupid I have been!"
- (c) The officer said that the man had finished the job.
- (d) The teacher said to him, "You have failed in the test."
- (e) He said, "I had won the race."

6. Choose the correct form of verb in agreement with the subject : 1×5=5

- (a) The cow as well as the horse \_\_\_\_\_ (eat/eats) grass.
- (b) Neither his father nor his brother \_\_\_\_\_ (is/are) alive.
- (c) Each of the hotels \_\_\_\_\_ (is/are) full.
- (d) A police officer, together with five constables \_\_\_\_\_ (has/have) come to investigate.
- (e) *Gulliver's Travels* \_\_\_\_\_ (was/were) written by Jonathan Swift.

( 4 )

7. Fill in the blanks with the correct forms of the verbs given in brackets : 1×5=5

- (a) Look! Mother \_\_\_\_\_ (go) to the movies.
- (b) When he woke up, his mother already \_\_\_\_\_ (prepare) breakfast.
- (c) By the time the doctor arrived at the house, the patient \_\_\_\_\_ (die).
- (d) Sara usually \_\_\_\_\_ (put) on black shoes.
- (e) Tomorrow I think I \_\_\_\_\_ (start) my new project.

8. You are the manager of Elmore Book Store, Dawrpui, Aizawl. Write a letter to Sunrise Publishing Company, Delhi, ordering books to be sold in your shop. 10

*Or*

In response to an advertisement, write an application to the Director of Public Works Department, Aizawl for the post of an Assistant. Provide your resume. 10

9. Write a paragraph on 'Festivals of Mizoram' in about 100 words. 5

10. Write short notes on any *two* of the following : 5×2=10

- (a) How to face interview
- (b) Importance of classroom interaction
- (c) Steps to success in group discussion

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( English Language and Communication Skills )

Full Marks : 75

Time : 3 hours

*The figures in the margin indicate full marks  
for the questions*

1. Answer any *two* of the following :  $10 \times 2 = 20$
- (a) Describe the components of communication, indicating clearly the function of each element.
  - (b) Discuss the factors which must be borne in mind to ensure smooth flow of communication.
  - (c) What elements must appear in the front matter of a report writing? Explain.
  - (d) Explain the various types of barriers to communication.

2. Change the voice of the following :  $1 \times 10 = 10$
- (a) The teacher has struck his name off.
  - (b) The letter is being written right now.
  - (c) The work will be finished by 5:00 p.m.
  - (d) Never insult the poor.
  - (e) Sam repaired the car.
  - (f) Does this grocer sell sugar?
  - (g) We offered her tea.
  - (h) I shall do the work.
  - (i) That castle has been visited by many tourists.
  - (j) Who was scolding her?
3. Change the form of speech :  $1 \times 10 = 10$
- (a) She said, "Alas! I have failed badly."
  - (b) The teacher said that everybody would take a walk.
  - (c) Maya said, "It has been raining since dawn."
  - (d) They said, "The police arrested the burglar."
  - (e) The old woman said that people had been helping.
  - (f) He said to me, "Are you going to the university?"

( 3 )

- (g) He said to the thief, "May you suffer for your sins."
- (h) The wolf said to the lamb, "Don't make the water muddy."
- (i) He said, "What a lovable baby!"
- (j) She said to her brother, "You have failed badly in the test."

4. Underline the clause and mention the kind of each : 1×5=5

- (a) He tells a tale that sounds untrue.
- (b) Wherever there are computers, there is Microsoft software.
- (c) If you save your money, you will be able to go to college.
- (d) Where they are going is unknown.
- (e) The coat which they hang is mine.

5. Choose the correct form of the verbs given in bracket in agreement with the subject : 1×10=10

- (a) Neither of the two girls \_\_\_\_ (is/are) ugly.
- (b) Every man, woman and children \_\_\_\_ was/were vaccinated last Saturday.
- (c) The dacoit together with his followers \_\_\_\_ (has/have) been captured.

( 4 )

- (d) The president, as well as the committee \_\_\_\_ (has/have) resigned.
- (e) A good man and a useful citizen \_\_\_\_ (has/have) passed away.
- (f) I have two pens but neither \_\_\_\_ (write/writes) well.
- (g) Don't punish them. Each of them \_\_\_\_ (is/are) honest.
- (h) Lodging and boarding \_\_\_\_ (is/are) free for members of the board.
- (i) Romeo and Juliet \_\_\_\_ (was/were) written by Shakespeare.
- (j) Each of your reasons for not marrying \_\_\_\_ (sound/sounds) funny.

6. Fill in the blanks with the correct form of the verbs given in brackets : 1×10=10

- (a) They \_\_\_\_ for over an hour before he arrived.  
(had talked, talked, had been talking)
- (b) While we were having the picnic, it \_\_\_\_ to rain.  
(is starting, started, has started)
- (c) I \_\_\_\_ to become a doctor.  
(studied, have studied, am studying)
- (d) I \_\_\_\_ him only one letter up to now.  
(have sent, sent, shall sent)

- (e) It started to rain while we \_\_\_\_\_ to market.  
(are going, were going, had gone)
- (f) We \_\_\_\_\_ the Clintons for a long time.  
(know, have known, are knowing)
- (g) I cannot go out. I \_\_\_\_\_ my homework.  
(do, did, am doing)
- (h) When he was young, he \_\_\_\_\_ football everyday.  
(played, was playing, had been playing)
- (i) By this time next year Harry \_\_\_\_\_ his board exam.  
(takes, will take, will have taken)
- (j) I was studying while he \_\_\_\_\_ dinner.  
(had made, made, was making)

6. Write short notes on any *two* of the following : 5×2=10

- (a) Non-verbal communication
- (b) Importance of reading skills in communication
- (c) How to overcome barriers to communication.

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2017

( 1st Semester )

BACHELOR OF COMPUTER APPLICATION

Paper No. : BCA-102 (OC)

( Discrete Mathematics )

( Old Course )

Full Marks : 75

Time : 3 hours

( PART : B—DESCRIPTIVE )

( Marks : 50 )

The figures in the margin indicate full marks for the questions

1. (a) In a class of 80 students, 50 students know English, 55 students know French and 46 students know German language. 37 students know English and French, 28 students know French and German, 7 students know none of the languages. Find out—
- (i) how many students know all the three languages;

- (ii) how many students know exactly two languages;
- (iii) how many students know any one language. 3+2+2=7

- (b) Differentiate between union and intersection of sets along with relevant example. 3

Or

- (c) Explain the algebra of sets along with relevant examples. 6

- (d) What do you mean by symmetric difference of sets? Explain with example. 4

2. (a) Find  $x, y, z, t$  where

$$\begin{matrix} 3 & x & y & & x & 6 & & 4 & x & y \\ & & & & & & & & & \\ & z & t & & 1 & 2t & & z & t & 3 \end{matrix} \quad 4$$

- (b) Find the inverse of the matrix

$$A = \begin{pmatrix} 1 & 2 & 2 \\ 2 & 3 & 6 \\ 1 & 1 & 7 \end{pmatrix} \quad 6$$

Or

- (c) Find  $2A - 3B$ , where

$$A = \begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{pmatrix} \text{ and } B = \begin{pmatrix} 3 & 0 & 2 \\ 7 & 1 & 8 \end{pmatrix} \quad 4$$

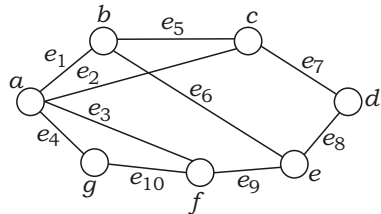
( 3 )

(d) Find the minors and cofactors of the determinant

$$|A| \begin{vmatrix} 1 & 2 & 3 \\ 4 & 2 & 3 \\ 0 & 5 & 1 \end{vmatrix} \quad 6$$

3. (a) Differentiate cutpoints and bridges along with example figure. 4

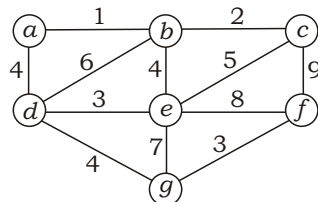
(b) Find the incidence and adjacent matrices from the following graph : 6



Or

(c) Differentiate Euler's path and Hamiltonian path along with example figure. 4

(d) Using Prim's algorithm, obtain the minimal spanning tree from the following graph : 6



( 4 )

4. (a) What are the two fundamental principles of counting? 2

(b) How many 9-digit numbers of different digits can be formed? 3

(c) In how many ways can an organization containing 26 members elect a president, treasurer and secretary (one person can appear for one post)? 3

(d) Explain binomial coefficients and Pascal's triangle. 2

Or

(e) Evaluate : 2

$$\lim_{x \rightarrow a} \frac{x^{12} - a^{12}}{x - a}$$

(f) Evaluate : 4

$$\lim_{x \rightarrow a} \frac{\sqrt{a-2x} - \sqrt{3x}}{\sqrt{3a-x} - 2\sqrt{x}}$$

(g) Differentiate  $x^6$  from the first principle. 4

5. (a) Find  $\frac{dy}{dx}$  from the following functions : 3+4+3=10

(i)  $y = x^2 e^x \sin x$

(ii)  $y = (3x - 5)(4x^2 - 3e^x)$

(iii)  $y = \frac{e^x}{(1 - \sin x)}$

( 5 )

Or

(b) Integrate the following : 3+3+4=10

(i)  $\frac{x^2}{(x^3 - 2)^{1/4}} dx$

(ii)  $\sin x \cos^3 x dx$

(iii)  $\int_2^4 (3x - 2)^2 dx$

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**Subject Code : I/BCA/102 (OC)**

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**Booklet No. A**

Date Stamp .....

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**To be filled in by the Candidate**

DEGREE 1st Semester  
(Arts / Science / Commerce /  
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Subject .....  
Paper .....

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DEGREE 1st Semester  
(Arts / Science / Commerce /  
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Roll No. ....  
Regn. No. ....  
Subject .....  
Paper .....  
Descriptive Type  
Booklet No. B .....

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*Signature of  
Scrutiniser(s)*

*Signature of  
Examiner(s)*

*Signature of  
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**I/BCA/102 (OC)**

**2 0 1 7**

( 1st Semester )

**BACHELOR OF COMPUTER APPLICATION**

Paper No. : BCA-102 (OC)

**( Discrete Mathematics )**

( Old Course )

( PART : A—OBJECTIVE )

( Marks : 25 )

*The figures in the margin indicate full marks for the questions*

SECTION—I

( Marks : 15 )

**A.** Put a Tick (✓) mark against the correct answer in the brackets provided : 1×10=10

1. The power set  $2^S$  of the set  $S = \{3, \{1, 4\}, 5\}$  is

(a)  $\{S, 3, 1, 4, \{1, 3, 5\}, \{1, 4, 5\}, \{3, 4\}, \emptyset\}$  ( )

(b)  $\{S, 3, \{1, 4\}, 5\}$  ( )

(c)  $\{S, \{3\}, \{3, \{1, 4\}\}, \{3, 5\}, \emptyset\}$  ( )

(d)  $\{S, \{1, 3, 5\}, \emptyset\}$  ( )

( 2 )

2. In matrix transpose

(a)  $a_{ij} = a_{ji}$  ( )

(b)  $a_{ij} = a_{ij}$  ( )

(c)  $a_{ii} = a_{jj}$  ( )

(d)  $a_{ij} = -a_{ji}$  ( )

3. In matrix multiplication

(a) the number of rows of the first is equal to the number of rows of the second matrix ( )

(b) the number of columns of the first is equal to the number of rows of the second matrix ( )

(c) both matrices should have equal order only ( )

(d) Both (b) and (c) ( )

( 3 )

4. The minimum number of colours needed to colour a graph is called

(a) chromatic polynomial ( )

(b) chronicle numbers ( )

(c) chromatic numbers ( )

(d) aberration numbers ( )

5. There are 8 male and 5 female professors teaching a calculus class. In how many ways the students can choose a calculus professor?

(a) 5 ways ( )

(b) 3 ways ( )

(c) 8 ways ( )

(d) 13 ways ( )

6. If  $A = \{1, 3, 4, 5\}$ ,  $B = \{3, 4, 5\}$ , then  $A \cup B = ?$

(a)  $\{1, 3, 4, 5, 3, 4, 5\}$  ( )

(b)  $\{3, 4, 5\}$  ( )

(c)  $\{1, 3, 4, 5\}$  ( )

(d)  $\{1, 3, 5\}$  ( )

( 4 )

7.  $\lim_{x \rightarrow 1} x^2 = ?$

(a) 1 ( )

(b) 2 ( )

(c) 3 ( )

(d) 4 ( )

8.  $\frac{d}{dx}(x^2 + 3x - 4)$  is

(a)  $2x + 3 - 4$  ( )

(b)  $x^3 + 3x^2 - 4x$  ( )

(c)  $2x + 3$  ( )

(d)  $x + 4$  ( )

9. A tree obtained from a graph with minimum cost is called

(a) minimal spanning tree ( )

(b) tree traversal ( )

(c) binary tree ( )

(d) unitary tree ( )

( 5 )

10.  $\int a \, dx = ?$

(a)  $\frac{a^2}{2} + c$  ( )

(b)  $\frac{ax}{2} + c$  ( )

(c)  $\frac{2}{a^2} + c$  ( )

(d)  $ax + c$  ( )

**B.** Tick (✓) whether the following statements are *True* or *False* : 1×5=5

1. A determinant is obtained from a square matrix.

*True* ( ) / *False* ( )

2.  $\lim_{x \rightarrow 0} \left( \frac{e^x - 1}{x} \right) = 1$

*True* ( ) / *False* ( )

( 6 )

3. Tree has cycles.

*True* ( ) / *False* ( )

4. Integration and differentiation are opposite to one another.

*True* ( ) / *False* ( )

5. Non-planar graphs cannot have the edges intersecting one another.

*True* ( ) / *False* ( )

( 7 )

SECTION—II

( Marks : 10 )

**C.** Answer the following questions briefly :  $2 \times 5 = 10$

1. Define colouring a graph.



( 8 )

2. Define subgraph.

( 9 )

3. Differentiate :

$$y = 3x^3 - \frac{7}{4}x^2 + 9x - 10$$

( 10 )

4. Integrate  $\int (4x^3 + 3x^2 - 2x - 15) dx$ .

( 11 )

5. Define set.

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2 0 1 7

( 1st Semester )

BACHELOR OF COMPUTER APPLICATION

Paper No. : BCA-102

[ Mathematics—I (Bridge Course) ]

Full Marks : 75

Time : 3 hours

( PART : B—DESCRIPTIVE )

( Marks : 50 )

The figures in the margin indicate full marks for the questions

1. (a) In an alloy, the ratio of copper and zinc is 5 : 2. If 1.250 kg of zinc is mixed with 17 kg 500 g of alloy, then find the new ratio of copper and zinc. 4
- (b) The average of 15 numbers is 7. If the average of the first 8 numbers be 6.5 and the average of last 8 numbers be 9.5, then find the middle number. 4
- (c) Find the greatest number of five digits which, when divided by 3, 5, 8, 12, leaves 2 as remainder. 4

OR

2. (a) 8% of the voters in an election did not cast their votes. There were only two candidates. The winner by obtaining 48% of the total votes defeated his contestant by 1100 votes, then find the total number of voters in the election. 4
- (b) Find the middle terms in the expansion of  $3 \frac{x^3}{6}^7$ . 4
- (c) Simplify : 4

$$8\frac{1}{2} \quad 3\frac{1}{4} \quad 1\frac{1}{4} \quad \frac{1}{2} \quad 1\frac{1}{2} \quad \frac{1}{3} \quad \frac{1}{6}$$

3. (a) Express the matrix

$$A = \begin{pmatrix} 1 & 5 & 1 \\ 2 & 3 & 4 \\ 7 & 0 & 9 \end{pmatrix}$$

as the sum of a symmetric matrix and a skew-symmetric matrix. 5

- (b) Find the matrix A such that

$$\begin{pmatrix} 5 & 7 \\ 2 & 3 \end{pmatrix} A = \begin{pmatrix} 16 & 6 \\ 7 & 2 \end{pmatrix} \quad 4$$

( 3 )

- (c) Construct a  $2 \times 3$  matrix whose whole elements are  $a_{ij} = \frac{(i-2j)^2}{2}$ . 3

OR

4. (a) Using the properties of determinants, prove that

$$\begin{vmatrix} a & b & c \\ a^2 & b^2 & c^2 \\ a^3 & b^3 & c^3 \end{vmatrix} = abc(a-b)(b-c)(c-a)$$
 5

- (b) By using elementary row operations, find the inverse of the matrix

$$\begin{pmatrix} 1 & 3 & 2 \\ 3 & 0 & 5 \\ 2 & 5 & 0 \end{pmatrix}$$
 5

- (c) Evaluate : 2

$$\begin{vmatrix} 3 & 4 & 5 \\ 1 & 1 & 2 \\ 2 & 3 & 1 \end{vmatrix}$$

5. (a) Insert five numbers between 8 and 26 such that the resulting sequence is an AP. 4

( 4 )

- (b) The first term of a GP is 27 and its 8th term is  $\frac{1}{81}$ . Find the sum of its first 10 terms. 4

- (c) Find arithmetic mean (AM) and geometric mean (GM) between 12 and 48. 3

OR

6. (a) If  $a, b, c$  are in AP, then show that  $(b-c), (c-a), (a-b)$  are in AP. 4

- (b) Find the GP (geometric progression) whose 4th and 7th terms are  $\frac{1}{18}$  and  $\frac{1}{486}$  respectively. 4

- (c) If  $G$  be the GM between two given numbers and  $A_1$  and  $A_2$  be the two AMs between them, then prove that  $G^2 = (2A_1 - A_2)(2A_2 - A_1)$  3

7. (a) Find the domain and range of the real function, defined by  $f(x) = \frac{1}{1-x^2}$ . 3

- (b) Find the derivative of  $\sin 2x$  from the first principle. 4

- (c) Find  $\frac{dy}{dx}$ , when  $y = e^{\sin x} (\tan x)^x$ . 5

( 5 )

(d) Evaluate : 3

$$\lim_{x \rightarrow 0} \frac{2x}{\sqrt{a-x} \sqrt{a+x}}$$

**OR**

8. (a) Find the value of for which

$$f(x) = \begin{cases} \frac{x^2 - 2x + 3}{x - 1}, & \text{when } x \neq 1 \\ \text{---}, & \text{when } x = 1 \end{cases}$$

is continuous at  $x = 1$ . 3

(b) Evaluate : 3

$$\int \cos 3x \sin 2x \, dx$$

(c) Evaluate : 4

$$\int x^2 \cos x \, dx$$

(d) Evaluate

$$\int_0^1 (3x^2 - 2x + 1) \, dx$$

as limit of sums. 5

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**Subject Code : I/BCA/102**

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**Booklet No. A**

Date Stamp .....

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Paper .....

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**I/BCA/102**

**2 0 1 7**

( 1st Semester )

**BACHELOR OF COMPUTER APPLICATION**

Paper No. : BCA-102

**[ Mathematics—I (Bridge Course) ]**

( PART : A—OBJECTIVE )

( Marks : 25 )

*The figures in the margin indicate full marks for the questions*

SECTION—I

( Marks : 15 )

- 1.** Put a Tick (✓) mark against the correct answer in the brackets provided : 1×10=10

(a) If  $3^x = \sqrt{81}$ , then the value of  $x$  is

(i) 3 ( )

(ii) 2 ( )

(iii) 4 ( )

(iv) 1 ( )

( 2 )

(b) The unit-place digit in  $(329)^{652}$  is

(i) 1 ( )

(ii) 9 ( )

(iii) 2 ( )

(iv) 5 ( )

(c) The 7th place of the GP 0.4, 0.8, 1.6, ... is

(i) 20.4 ( )

(ii) 25.6 ( )

(iii) 25 ( )

(iv) 25.4 ( )

(d) Which of the following terms of AP 56, 52, 48, ... is 0?

(i) 15th ( )

(ii) 17th ( )

(iii) 14th ( )

(iv) 16th ( )

( 3 )

(e) A matrix in which  $a_{ij} = 0$  for  $i \neq j$  is called

..... matrix.

(i) diagonal ( )

(ii) scalar ( )

(iii) unit ( )

(iv) null ( )

(f) If  $\begin{bmatrix} x + y \\ x - y \end{bmatrix} = \begin{bmatrix} -3 \\ -5 \end{bmatrix}$ , then the value of  $y$  is

(i) -2 ( )

(ii) 3 ( )

(iii) 1 ( )

(iv) -4 ( )

(g)  $\lim_{x \rightarrow 0} \left( \frac{e^{3x} - 1}{x} \right)$  is

(i) 5 ( )

(ii) 4 ( )

(iii) 2 ( )

(iv) 3 ( )

( 4 )

(h)  $\frac{d}{dx} \left( \frac{1}{\sqrt[3]{x}} \right) =$

(i)  $-3x^{-4}$  ( )

(ii)  $-\frac{1}{3}x^{-4/3}$  ( )

(iii)  $3x^{-4}$  ( )

(iv)  $3x^{-5}$  ( )

(i)  $\int x^{-1} dx$  is

(i) 1 ( )

(ii) 0 ( )

(iii)  $\log x$  ( )

(iv)  $x \log x$  ( )

(j) The domain of  $f(x) = x^2$  is

(i)  $\mathbb{Z}$  ( )

(ii)  $\mathbb{R}$  ( )

(iii)  $d$  ( )

(iv)  $\mathbb{R} - \{-1\}$  ( )

( 5 )

2. Tick (✓) either *True* or *False* :

1×5=5

(a) The LCM of  $\frac{2}{3}$ ,  $\frac{4}{9}$ ,  $\frac{12}{15}$ ,  $\frac{24}{21}$  is 24.

*True* ( ) / *False* ( )

(b) The 4th term in the sequence  $a_n = (-1)^{n-1} \times 2^{n+1}$  is 32.

*True* ( ) / *False* ( )

(c) A square matrix  $A$  is said to be skew-symmetric, if  $A' = -A$ .

*True* ( ) / *False* ( )

(d) If  $y = (5 + 7x)^6$ , then  $\frac{dy}{dx} = 6(5 + 7x)^5$ .

*True* ( ) / *False* ( )

(e)  $\int \operatorname{cosec} x (\operatorname{cosec} x - \cot x) dx$  is

$-\cot x + \operatorname{cosec} x + c$

*True* ( ) / *False* ( )

( 6 )

SECTION—II

( Marks : 10 )

Answer the following questions :

2×5=10

1. Find the average of first 40 natural numbers.

( 7 )

2. If the 9th term of an AP is 0, then prove that its 29th term is double the 19th term.

( 8 )

3. If

$$A = \begin{bmatrix} 2 & -2 & -4 \\ -1 & 3 & 4 \\ 1 & -2 & -3 \end{bmatrix}$$

then show that  $A^2 = A$ .



( 9 )

4. Show that  $f(x) = x^2 + 3x + 4$  is continuous at  $x = 1$ .

( 10 )

5. If  $y = e^{3x} \cos 2x$ , then find  $\frac{dy}{dx}$ .

\*\*\*

2 0 1 7

( 1st Semester )

BACHELOR OF COMPUTER APPLICATION

Paper No. : BCA-103 (OC)

( **Computer Fundamental and PC Software** )

( Old Course )

Full Marks : 75

Time : 3 hours

( PART : B—DESCRIPTIVE )

( Marks : 50 )

*The figures in the margin indicate full marks  
for the questions*

1. (a) What is computer? Why is it also known as a data processor? 5
- (b) Explain input devices of a computer in detail. 5
- Or*
- (c) Write the important characteristic features of third-generation computer. 5
- (d) Explain the working of screen image projector. 5

2. (a) Draw a block diagram to illustrate the basic organization of a computer system and explain the functions of various units. 5
- (b) Convert the following : 1+2+2=5
- (i)  $(11001)_2$  to decimal number
- (ii)  $(101111001010)_2$  to hexadecimal number
- (iii)  $(435)_{10}$  to octal number

*Or*

- (c) Differentiate between the characteristics of primary and secondary storages of a computer system. 5
- (d) Define BCD, EBCDIC and ASCII. What is the difference between ASCII-7 and ASCII-8? 5
3. (a) List the main functions of CPU in a computer system. 5
- (b) Distinguish among a sequential access, a direct access and a random access storage device. 5
- Or*
- (c) Write notes on RAM, ROM and Cache memory. 5
- (d) Explain the working principles of magnetic tape. What are the limitations of magnetic tape? 5

4. (a) What is machine language? What are the advantages and limitations of assembly language over machine language? 5
- (b) What is an object-oriented programming language? What are the advantages of high-level languages? 5
- Or*
- (c) Explain compiler and linker in detail. 5
- (d) What are the characteristics of good programming language? 5
5. (a) What is operating system? What are the functions of OS? 6
- (b) Give comparison between character user interface and graphical user interface. 4
- Or*
- (c) What is MS-Office? What are the components of MS-Office? 5
- (d) Write a formula of MS-Excel to compute total marks obtained by students assuming there are four subjects. Use *if* function to grade the students from their total marks. 5

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**Subject Code : I/BCA/103 (OC)**

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**I/BCA/103 (OC)**

**2 0 1 7**

( 1st Semester )

**BACHELOR OF COMPUTER APPLICATION**

Paper No. : BCA-103 (OC)

**( Computer Fundamental and PC Software )**

( Old Course )

( PART : A—OBJECTIVE )

( Marks : 25 )

*The figures in the margin indicate full marks for the questions*

SECTION—I

( Marks : 15 )

**I.** Tick (✓) the correct answer in the brackets provided :

1×10=10

1. Who invented the first mechanical adding machine?

(a) Blaise Pascal ( )

(b) Charles Babbage ( )

(c) Baron Gottfried ( )

(d) Wilhelm von Leibniz ( )

( 2 )

2. In which generation were ICs with SSI and MSI technologies introduced?

(a) First ( )

(b) Second ( )

(c) Third ( )

(d) Fourth ( )

3. CPU is called the \_\_\_\_\_ of a computer.

(a) heart ( )

(b) brain ( )

(c) nervous system ( )

(d) None of the above ( )

4.  $(11001100)_2$  is equal to

(a)  $(202)_{10}$  ( )

(b)  $(204)_{10}$  ( )

(c)  $(206)_{10}$  ( )

(d)  $(208)_{10}$  ( )

( 3 )

5. CISC stands for
- (a) complete instruction set computer ( )
  - (b) complete instruction set computing ( )
  - (c) complex instruction set computer ( )
  - (d) complex instruction set computing ( )
6. Which among the following registers stores the intermediate results?
- (a) Program control register ( )
  - (b) Instruction register ( )
  - (c) Input/Output register ( )
  - (d) Accumulator register ( )
7. A system program that combines the separately compiled modules of a program into a form suitable for execution is
- (a) assembler ( )
  - (b) linking loader ( )
  - (c) cross-compiler ( )
  - (d) load-and-go ( )



( 4 )

8. Process is
- (a) a program in high-level language kept on disk ( )
  - (b) contents of main memory ( )
  - (c) a program in execution ( )
  - (d) a job in secondary memory ( )
9. Which of the following batch files is read while booting a computer?
- (a) Autoexec.bat ( )
  - (b) Auto-batch ( )
  - (c) Autoexecutive.bat ( )
  - (d) Auto.bat ( )
10. Why are headers and footers used in documents?
- (a) To mark large document more readable ( )
  - (b) To mark the starting and ending of a page ( )
  - (c) To enhance the overall appearance of the document ( )
  - (d) To allow page headers and footers to appear on document when it is printed ( )

( 5 )

II. State whether *True (T)* or *False (F)* by a Tick (✓) mark : 1×5=5

1. GIGO stands for garbage-in garbage-out.

( T / F )

2. ASCII was implemented before BCD code was published.

( T / F )

3. Secondary storages are volatile devices.

( T / F )

4. UNIX is a single-user operating system.

( T / F )

5. The overall functions of the OS are to manage I/O, files and memory.

( T / F )

( 6 )

SECTION—II

( Marks : 10 )

**III.** Answer the following questions : 2×5=10

1. Explain impact and non-impact printers.

( 7 )

2. Write a note on control unit of a computer.

( 8 )

3. Explain how data is stored in CD-ROM.

( 9 )

4. What is interpreter?

5. Write a note on MS-PowerPoint.

\*\*\*

2 0 1 7

( 1st Semester )

BACHELOR OF COMPUTER APPLICATION

Paper No. : BCA-103

( Introduction to Information Technology )

Full Marks : 75

Time : 3 hours

( PART : B—DESCRIPTIVE )

( Marks : 50 )

*The figures in the margin indicate full marks  
for the questions*

1. (a) Elaborate the classification of computer. 10  
Or  
(b) Explain magnetic hard disk with advantages and disadvantages. 7  
(c) What is secondary storage device? How does it differ from primary storage device? 3
2. (a) What are the characteristic features of high-level languages? 6  
(b) What is compiler? Why is it required? 4

Or

- (c) What is an algorithm? What are the characteristics necessary for a sequence of instruction to qualify as an algorithm? 5  
(d) What are the basic symbols used in flowcharting? Give the pictorial representations. 5
3. (a) Draw and explain the basic organisation of a typical multiprocessing system. 10  
Or  
(b) What is computer virus? How does a typical virus work? 7  
(c) Differentiate between multiprogramming and multitasking. 3
4. (a) Describe the layering concepts in the OSI model of the network architecture with the function of each layer. 10  
Or  
(b) Differentiate between analog and digital transmissions of data. 4  
(c) What is an optical fibre? How is it used for data communication? 6
5. (a) What is netiquette? What are the rules for email? 6  
(b) Define the following : 2+2=4  
(i) Web Browser  
(ii) Uniform Resource Locator (URL)

( 3 )

*Or*

- (c) What are the impacts of internet to education and research? 7
- (d) Distinguish between Hacker and Cracker. 3

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Subject Code : I/BCA/103

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( 1st Semester )

**BACHELOR OF COMPUTER APPLICATION**

Paper No. : BCA-103

**( Introduction to Information Technology )**

( PART : A—OBJECTIVE )

( Marks : 25 )

*The figures in the margin indicate full marks for the questions*

SECTION—I

( Marks : 15 )

**I.** Tick (✓) the correct answer from the following in the brackets provided : 1×10=10

1. Which one of the following is top-level domain?

(a) .com ( )

(b) .org ( )

(c) .net ( )

(d) None of the above ( )

( 2 )

2. The amount of work that a system is able to do per unit time is called

(a) throughput ( )

(b) turnaround time ( )

(c) response time ( )

(d) process ( )

3. Which one of the following is the largest?

(a) MAN ( )

(b) WAN ( )

(c) LAN ( )

(d) VAN ( )

4. The device that chooses the best way or path of data for data communication is called

(a) bridge ( )

(b) router ( )

(c) modem ( )

(d) gateway ( )

( 3 )

5. A communication system that allows data to flow in both directions simultaneously is
- (a) simplex ( )
  - (b) half-duplex ( )
  - (c) full-duplex ( )
  - (d) duplex ( )
6. Which of the following is not a category of computer language?
- (a) High-level language ( )
  - (b) Natural language ( )
  - (c) Machine language ( )
  - (d) Assembly language ( )
7. Operating systems such as Windows XP, Linux, Mac OS, etc., are examples of
- (a) system software ( )
  - (b) application software ( )
  - (c) customized software ( )
  - (d) None of the above ( )

( 4 )

8. Which one of the following is an object-oriented language?

(a) Cobol ( )

(b) Fortran ( )

(c) Simula-67 ( )

(d) C ( )

9. The surface of the disk is divided into number of invisible concentric circles is called

(a) sector ( )

(b) track ( )

(c) cylinder ( )

(d) None of the above ( )

10. Which one of the following is the fastest memory?

(a) Main memory ( )

(b) Cache memory ( )

(c) Secondary memory ( )

(d) Magnetic tape ( )

( 5 )

II. State whether the following statements are *True (T)* or *False (F)* by putting a Tick (✓) mark : 1×5=5

1. The hypertext includes only collection of texts.

( T / F )

2. The first step in software development is coding the program.

( T / F )

3. The interval between the time a computer makes a request for transfer of data from a disk system to primary storage and the time this operation is completed is called wait time.

( T / F )

4. Magnetic disks use laser technology for recording and therefore they are also known as laser disks.

( T / F )

5. Access speed for optical disks is slower than magnetic disks.

( T / F )

( 6 )

SECTION—II

( Marks : 10 )

**III.** Answer the following questions : 2×5=10

1. What are the five basic operations performed by the computer system?

( 7 )

2. What is meant by coding a program?



( 8 )

3. Differentiate between single-user and multiuser operating systems.

( 9 )

4. Why does modulation use signal transmission?

( 10 )

5. What is hypertext?

\*\*\*

2 0 1 7

( 1st Semester )

BACHELOR OF COMPUTER APPLICATION

Paper No. : BCA-103P

( PC Application and Internet Technology )

( Practical )

Full Marks : 75

Time : 3 hours

*The figures in the margin indicate full marks  
for the questions*

SECTION—A

Answer any **two** questions

1. Using MS-DOS, create a folder BCA103 in C:Drive and perform the following : 15
  - (a) Create text file (file1.txt) and enter any text up to five lines.
  - (b) Create a subfolder BACKUP under BCA103.
  - (c) Copy file1.txt to BACKUP folder.

- (d) Change file attribute to Read only mode.
- (e) Create a batch file batch1.bat to display—
  - (i) IP address of computer;
  - (ii) Windows version;
  - (iii) Computer hardware information.

2. Create a committee letter to 10 recipients using mail merge, which contains Name, Address, Agenda, Venue, Date and Time and save the merged document for printing—

Main document file : Committee-letter.doc  
Data source file : Comm.-member.xls  
Merged document : Comm.-mergedfile.doc.

15

3. Create a PowerPoint presentation for your institution which contains pages as follows :

- (a) Front page (main\_page.ppt)
- (b) Courses offered page (courses\_page.ppt)
- (c) Library page (library\_page.ppt)
- (d) Hostel page (hostel.ppt)
- (e) Photo page (photos\_page.ppt)

Create a link button so that each page can be linked from the main page.html.

15

( 3 )

4. Using MS-Excel, create the students' result sheet (result.xls) which contains Serial No., Name of Student, Reg. No. and Mark in each Subject (English, Mizo, Maths, Science, Projects). Enter 10 records and prepare result sheet as follows : 15
- (a) Calculate total marks obtained
  - (b) Calculate Marks percentage obtained
  - (c) Display PASS (only if marks obtained in each subject  $\geq 30$ ) otherwise, FAIL
  - (d) Prepare division based on
    - (i) Distinction : marks  $\geq 80$
    - (ii) First : Marks  $\geq 60$
    - (iii) Second : Marks  $\geq 45$
    - (iv) Third : Marks  $\geq 30$
    - (v) Fail : Marks  $\leq 30$
  - (e) Calculate No. of passed students and failed students.
  - (f) Calculate the No. of students passing at distinction, first, second and third division.

SECTION—B

Answer *any one* question

5. Write an HTML document (demo.html) to demonstrate the uses of the following : 20
- (a) Fonts formatting : Bold, Italic, Underline, Text Colour

8G/261

( Turn Over )

( 4 )

- (b) Different heading style
  - (c) Background formatting
  - (d) Ordered list and Unordered list
  - (e) Picture insertion
  - (f) Hyperlink
  - (g) Text animation
6. Develop an HTML document for a Web page of your favorite newspaper. Design the page with an attractive colour combination, image, with suitable headings and horizontal rules. Your Web pages should have
- (a) Front page (main\_page.html)
  - (b) Sports page (sports\_page.html)
  - (c) News page (news\_page.html)
  - (d) Advertisement page (ads.html)
  - (e) Photo page (photos\_page.html)
- Create a link button so that each page can be linked from the main page.html. 20

SECTION—C

7. Viva 15
8. Practical Record Book 10

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I/BCA/103P

2 0 1 7

( 1st Semester )

BACHELOR OF COMPUTER APPLICATION

Paper No. : BCA-104 (OC)

( Introduction to Internet and Web Design )

( Old Course )

Full Marks : 75

Time : 3 hours

( PART : B—DESCRIPTIVE )

( Marks : 50 )

*The figures in the margin indicate full marks  
for the questions*

1. (a) Explain LAN, MAN and WAN by giving a suitable example of each. 6
- (b) Write a short note on the impact of internet to society. 4
- Or*
- (c) Write a short note on evolution of internet. 5
- (d) Write any five applications of internet. 5

2. (a) Explain the TCP/IP model by giving a suitable diagram. 6
- (b) What are different classifications of ISP? Explain. 4

*Or*

- (c) Explain the concept of client-server technology. Draw the diagram to support your answer. 5
- (d) Write the uses of SMTP, POP3 and MIME. 5

3. (a) Explain how Web browser communicates with Web server. 5
- (b) Write the format of URL and explain each field. 5

*Or*

- (c) What is email? Write any two advantages and disadvantages of email. 5
- (d) Explain File Transfer Protocol and write its applications. 5

4. (a) Write HTML program to demonstrate ordered list and unordered list. Also write the output. 6
- (b) Write HTML program to demonstrate text formatting. 4

( 3 )

*Or*

- (c) Differentiate between <td> and <th> HTML tags. Write HTML program to justify your answer. 5
- (d) Write HTML program to demonstrate heading, horizontal line and links. 5
5. (a) Write HTML program to demonstrate table by specifying the table header, cell padding, colspan, rowspan and border attributes. 10

*Or*

- (b) Write HTML program to demonstrate Frame and Frameset tags. 5
- (c) Write HTML program to demonstrate adding of image img1.jpg. 5

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**Subject Code : I/BCA/104 (OC)**

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**Booklet No. A**

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**I/BCA/104 (OC)**

**2 0 1 7**

( 1st Semester )

**BACHELOR OF COMPUTER APPLICATION**

Paper No. : BCA-104 (OC)

**( Introduction to Internet and Web Design )**

( Old Course )

( PART : A—OBJECTIVE )

( Marks : 25 )

*The figures in the margin indicate full marks for the questions*

SECTION—I

( Marks : 15 )

**I.** Tick (✓) the correct answer in the brackets provided :  
1×10=10

1. To join the internet, the computer has to be connected to an

(a) internet architecture board ( )

(b) internet society ( )

(c) internet service provider ( )

(d) RIR ( )

( 2 )

2. Internet access by transmitting digital data over the wires of a local telephone network is provided by

(a) leased line ( )

(b) digital subscriber line ( )

(c) digital signal line ( )

(d) FTP ( )

3. Which of the following is a search engine?

(a) AltaVista ( )

(b) Safari ( )

(c) Chrome ( )

(d) Firefox ( )

4. What is the use of forms in HTML?

(a) To display the contents of HTML ( )

(b) To display a Web page with animation effect ( )

(c) To display a Web page without browser ( )

(d) To collect the user's input ( )

( 3 )

5. Multiline text entry tag in HTML is

(a) <em> ( )

(b) <input> ( )

(c) <select> ( )

(d) <textarea> ( )

6. The alt attribute in <img> tag specifies the

(a) width of the image ( )

(b) height of the image ( )

(c) source of the image ( )

(d) alternative tag to be used when image cannot be displayed ( )

7. Comment tag in HTML is

(a) <c> ( )

(b) <comment> ( )

(c) <!----!> ( )

(d) // ( )

( 4 )

8. HTTP protocol is used for
- (a) transferring Web page ( )
  - (b) file transfer ( )
  - (c) checking error ( )
  - (d) defining IP address ( )
9. Client/Server concept is used by
- (a) HTTP ( )
  - (b) IP ( )
  - (c) GSM ( )
  - (d) Netiquette ( )
10. Internet is a connection of multiple
- (a) networks ( )
  - (b) Web browsers ( )
  - (c) HTML documents ( )
  - (d) Web pages ( )

( 5 )

II. Tick (✓) whether the following statements are  
True (T) or False (F) : 1×5=5

1. The internet is owned by ICANN.

( T / F )

2. IPv4 address is of 64 bits.

( T / F )

3. Telnet is used for remote login.

( T / F )

4. HTML is one of the internet protocols.

( T / F )

5. <br> tag is used for table caption.

( T / F )

( 6 )

SECTION—II

( Marks : 10 )

**III.** Answer the following questions : 2×5=10

1. Distinguish between hacker and cracker.

( 7 )

2. What is DNS?

( 8 )

3. Differentiate between upload and download.

4. What is a dynamic Web page?



( 9 )

5. What is HTML?

\*\*\*

2 0 1 7

( 1st Semester )

## BACHELOR OF COMPUTER APPLICATION

Paper No. : BCA-104

## ( Digital Computer Fundamentals )

Full Marks : 75

Time : 3 hours

( PART : B—DESCRIPTIVE )

( Marks : 50 )

*The figures in the margin indicate full marks  
for the questions*

1. (a) What is decoder? Design a 3-to-8 line decoder showing its truth table. 5
- (b) Explain full adder by showing its truth table and implementation using logic gates. 5
- Or*
- (c) What is multiplexer? Write the logic and draw the block diagram of a 4-to-1 line multiplexer. 5
- (d) Explain encoder with suitable diagram and truth table. 5

2. (a) Explain the working of T flip-flop giving its logic diagram and its characteristic table. 5

- (b) What is ripple counter? Explain how it works showing suitable diagram. 5

*Or*

- (c) Explain the working of D flip-flop giving its logic diagram and its characteristic table. 6

- (d) Explain shift register with block diagram. 4

3. (a) Explain any five digital logic gates with names, graphic symbols and truth tables. 5

- (b) Convert  $(110101011010101101)_2$  to decimal, octal and hexadecimal. 5

*Or*

- (c) Convert  $(41)_{10}$  to binary, octal and hexadecimal. 5

- (d) Explain the  $r$ 's complement and  $(r-1)$ 's complement. What is the 9's complement of  $(2413)_{10}$ ? 5

4. (a) Simplify the following : 5

(i)  $\bar{A} \cdot \bar{B} \cdot \bar{C} + \bar{A} \cdot B \cdot \bar{C}$

(ii)  $\bar{A}\bar{B}\bar{C} + \bar{A}B\bar{C} + A\bar{B}\bar{C} + AB\bar{C}$

- (b) Express the Boolean function  $F = x + y'z$  in a sum of minterm form. 5

( 3 )

Or

- (c) Draw the logic circuit for  $y = A\bar{B}C + ABC$ . Simplify the equation with Boolean algebra and draw the simplified logic circuit. 5
- (d) Simplify the Boolean function  $F = x \cdot y + x' \cdot z + y \cdot z$  to a minimum number of literals. 5
5. (a) Differentiate between arithmetic micro-operation and logic micro-operation by giving suitable examples. 6
- (b) Explain any *two* from the following :  $2 \times 2 = 4$
- (i) Overflow
  - (ii) Arithmetic stuff
  - (iii) Floating-point data
- Or
- (c) Explain macro-operation and micro-operation with examples. 6
- (d) Explain shift micro-operation with a suitable example. 4

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Subject Code : I/BCA/104

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( 1st Semester )

**BACHELOR OF COMPUTER APPLICATION**

Paper No. : BCA-104

**( Digital Computer Fundamentals )**

( PART : A—OBJECTIVE )

( Marks : 25 )

*The figures in the margin indicate full marks for the questions*

SECTION—I

( Marks : 15 )

**I.** Tick (✓) the correct answer in the brackets provided :

1×10=10

1. Ripple counters are sometimes called

(a) synchronous counters ( )

(b) registers ( )

(c) asynchronous counters ( )

(d) program counters ( )

( 2 )

2. A combinational circuit that performs the addition of three bits is called

(a) full adder ( )

(b) full subtractor ( )

(c) half adder ( )

(d) half subtractor ( )

3. The D flip-flop is a modification of

(a) J-K flip-flop ( )

(b) T flip-flop ( )

(c) R-S flip-flop ( )

(d) clocked R-S flip-flop ( )

4. The 10's complement of  $(4136)_{10}$  is

(a) 5841 ( )

(b) 5864 ( )

(c) 5844 ( )

(d) 5874 ( )

( 3 )

5. The decimal form of  $(111011)_2$  is
- (a) 49 ( )
  - (b) 57 ( )
  - (c) 59 ( )
  - (d) 53 ( )
6. BCD stands for
- (a) Binary-coded Decimal ( )
  - (b) Binary-coded Debain ( )
  - (c) Basic carrier Deck ( )
  - (d) Based counter Decimal ( )
7. A combinational circuit that selects binary information from one of many input lines and directs it to a single output line is called
- (a) decoder ( )
  - (b) encoder ( )
  - (c) multiplexer ( )
  - (d) demultiplexer ( )

( 4 )

8. A flip-flop that can be constructed from two NAND gates and two NOR gates is called

(a) J-K flip-flop ( )

(b) R-S flip-flop ( )

(c) T flip-flop ( )

(d) D flip-flop ( )

9. The decimal form of  $(363)_8$  is

(a) 234 ( )

(b) 243 ( )

(c) 342 ( )

(d) 423 ( )

10. A register capable of shifting its binary information either to the right or left is called

(a) program counter ( )

(b) flip-flop ( )

(c) shift register ( )

(d) shift counter ( )



( 5 )

II. Tick (✓) whether the following statements are True (T) or False (F) : 1×5=5

1. Logic micro-operations specify binary operations for a string of bits stored in the register.

( T / F )

2. A data selector is also called a demultiplexer.

( T / F )

3. One of the stages in a register consists of a latch.

( T / F )

4. A NAND gate output is low only if all the inputs are high.

( T / F )

5. A ripple counter is a synchronous counter.

( T / F )

( 6 )

SECTION—II

( Marks : 10 )

**III.** Answer the following questions :

2×5=10

1. Simplify  $Y \bar{A} B (A B)$ .

( 7 )

2. What do you mean by arithmetic shift?

3. From the given expression, draw the gate symbol and truth table

*Exp*  $\bar{A}$   $B$   $C$   $\bar{D}$

( 8 )

4. What is combinational circuit?

5. What is flip-flop?

\*\*\*

2 0 1 7

( 1st Semester )

BACHELOR OF COMPUTER APPLICATION

Paper No. : BCA-105 (OC)

( PC Software )

( Practical )

( Old Course )

Full Marks : 75

Time : 3 hours

*The figures in the margin indicate full marks  
for the questions*

SECTION—A

Answer *any two* questions

1. Answer the following : 3×5=15

- (a) Write down the syntax of MS-DOS command to remove a folder in the current directory.
- (b) Write down the syntax of MS-DOS command to copy a file from one drive to another.

- (c) Write down the steps to insert page number using MS-Word 2007.
- (d) Write the steps to create PIVOT table in Excel 2007.
- (e) Write the steps to uninstall a program file in Windows.

2. In MS-Word, send the given letter to the following recipients using Mail Merge : 15

To,

<Recipient Title><Recipient name>

<Recipient Designation>

<Recipient Company>

<Recipient Email>

Thank You for being part of the community's conservation efforts. Because of your contribution of <insert amount here>, we are able to support the needed people from across the country.

Sincerely,

James Sailo

Managing Director

ABC Helpline.

*Recipient Names :*

- (a) Mr. Ronald, CEO, Multiport Company, ronald1234@gmail.com
- (b) Mrs. Mary, Director, Social Welfare, mary321@gmail.com
- (c) Dr. Prasad Rao, Associate Professor, City College, prasadr@yahoo.co.in
- (d) Mr. Mahesh Babu, President, New Youth Assn., maheshbabu@gmail.com

( 3 )

3. Using MS-Word, create the document template for the bio data with the following format : 15

**Application Form for Junior Research Fellow (JRF)**



01. Name of the candidate (CAPITAL) :  
02. Father/Husband's Name :  
03. Mother's Name :  
04. Date of Birth :  
05. Sex :  
06. Married/Unmarried :  
07. Address with Phone and Mobile Numbers :  
    Permanent :  
    Correspondence :  
08. E-mail address :  
09. Educational qualification :  
(Starting from SSC/matriculation onwards)

Name of the Exam.	Name of the Board/University	Subjects	Marks obtained	%/Grade
1.				
2.				
3.				

8G/283

( Turn Over )

( 4 )

SECTION—B

Answer *any one* question

4. Using MS-Excel, prepare an exam result mark-sheet for the following (see the Annexure) : 20

Full Marks for each subject (Theory) : 100  
Full Marks for Practical Paper : 50  
Marks Obtain : Total Marks obtained from all subjects  
Percentage : The percentage of the total marks obtained  
Maximum and Minimum : Max and Min marks from all subjects  
Division : If secure more than or equal to 80, 'Distinction'  
                  If secure more than or equal to 60, 'First'  
                  If secure more than or equal to 50, 'Second'  
                  If secure more than or equal to 40, 'Third'  
                  If less than 30, 'Fail'

5. Using MS PowerPoint, create at least five (5) slides on the topic 'Our College'. Change the default theme, and use transition effect and customs animations whenever possible to make your presentation more eye-catching. Insert pictures and charts if needed. Set each slides to be opened within 10 seconds simultaneously (without manual clicking). 20

SECTION—C

6. Viva Voce 15  
7. Practical Record Book 10

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8G—20/283

I/BCA/105 (OC)

**ANNEXURE**

<b>R.No.</b>	<b>Name</b>	<b>THEORY</b>				<b>Practical (out of 50)</b>	<b>Total Marks</b>	<b>Marks Obtained</b>	<b>Percentage</b>	<b>Maximum</b>	<b>Minimum</b>	<b>Division</b>
		<b>English</b>	<b>Mizo</b>	<b>Maths</b>	<b>Science</b>							
1	Johny	70	55	78	80	45	450					
2	Michael	77	77	80	80	46	450					
3	Mary	30	40	35	45	20	450					
4	Steve	78	65	45	50	30	450					
5	Jessy	60	60	55	45	40	450					

2017

( 1st Semester )

## BACHELOR OF COMPUTER APPLICATION

Paper No. : BCA-105

## ( Programming Language through C )

Full Marks : 75

Time : 3 hours

( PART : B—DESCRIPTIVE )

( Marks : 50 )

*The figures in the margin indicate full marks  
for the questions*

1. (a) Briefly explain the importance of C language. 4
- (b) Explain the different data types with examples. 6
- Or*
- (c) What is an operator? Write down the operator precedence and their associativity. 6
- (d) Explain the formatted input/output with appropriate examples. 4

2. (a) Write a simple program to differentiate 'if' and 'if-else' statements. 6
- (b) Mention the relationship between switch statement and break statement with example. 4

*Or*

- (c) What is the difference between 'while' and 'do while' loops? 4
- (d) Explain the structure of 'for' loop. Write a C program to find the sum of first 5 natural numbers using 'for' loop. 6
3. (a) What are the elements of user-defined functions? 4
- (b) Differentiate between bubble sort and insertion sort with suitable examples. 6

*Or*

- (c) What are the categories of function? Explain. 6
- (d) Define array. How do you declare and initialize an array? 4
4. (a) Mention the difference between the following string functions with examples : 6
- (i) strcpy and strncpy
- (ii) strcat and strncat



( 3 )

(b) Write the benefits of using pointers in C. 4

*Or*

(c) Write a program using pointers to exchange the values stored in two memory locations. 4

(d) Explain the declaration and initialization of a string variable with examples. 6

5. (a) What is a file? Explain the various operations on file. 6

(b) Differentiate between structures and unions with its syntax. 4

*Or*

(c) What are the meanings of 'arrays within structures' and 'structure within structures'? 6

(d) How does a user define data type? 4

\*\*\*

**I/BCA/105**

**2 0 1 7**

( 1st Semester )

**BACHELOR OF COMPUTER APPLICATION**

Paper No. : BCA-105

**( Programming Language through C )**

( PART : A—OBJECTIVE )

( Marks : 25 )

*The figures in the margin indicate full marks for the questions*

SECTION—I

( Marks : 15 )

- 1.** Put a Tick (✓) mark against the correct answer in the brackets provided : 1×10=10

(a) Which of the following is not a C token?

(i) Keywords ( )

(ii) Expression ( )

(iii) String ( )

(iv) Int ( )

( 2 )

(b) There are \_\_\_\_\_ ANSI C keywords.

(i) 5 ( )

(ii) 30 ( )

(iii) 32 ( )

(iv) 33 ( )

(c) The \_\_\_\_\_ requires a label in order to identify the place where the branch is to be made.

(i) switch ( )

(ii) continue ( )

(iii) goto ( )

(iv) for ( )

(d) The \_\_\_\_\_ is an entry-controlled loop statement.

(i) while ( )

(ii) for ( )

(iii) do while ( )

(iv) if-else ( )

( 3 )

(e) Which of the following is not a user-defined types?

(i) Structures ( )

(ii) Arrays ( )

(iii) Enumerations ( )

(iv) All of the above ( )

(f) The default data type of a return value to the calling function is

(i) float ( )

(ii) double ( )

(iii) int ( )

(iv) Both (i) and (ii) ( )

( 4 )

(g) If the operator \_\_\_\_\_ precedes a variable, it returns the address of the variable associated with it.

(i) \* ( )

(ii) \$ ( )

(iii) & ( )

(iv) All of the above ( )

(h) Pointer has

(i) pointer operators ( )

(ii) pointer constants ( )

(iii) pointer expression ( )

(iv) All of the above ( )

( 5 )

(i) The function named \_\_\_\_\_ reads a character from a file.

(i) fopen() ( )

(ii) getc() ( )

(iii) putw() ( )

(iv) puts() ( )

(j) Which of the following is not included in a structure variable declaration?

(i) struct ( )

(ii) tag name ( )

(iii) identifiers ( )

(iv) All of the above ( )

( 6 )

2. State whether the following statements are *True (T)* or *False (F)* by putting a Tick (✓) mark :  $1 \times 5 = 5$

(a) When prefix ++ or -- is used in an expression, the variable is incremented or decremented after the expression is evaluated.

( T / F )

(b) The 'if' statement is a one-way decision-making statement.

( T / F )

(c) The parameters used in prototypes and function definitions are called actual parameters.

( T / F )

(d) Pointers can be used to return multiple values from a function.

( T / F )

(e) Structure can have elements of different types.

( T / F )

( 7 )

SECTION—II

( Marks : 10 )

3. Answer the following questions : 2×5=10

(a) Differentiate between keywords and identifiers.



( 8 )

(b) What is an infinite loop?

(c) Define function prototype.

( 9 )

(d) What is a pointer?

(e) Differentiate between local and global variables.

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**Subject Code : I/BCA/105**

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**Booklet No. A**

Date Stamp .....

.....

.....

**To be filled in by the Candidate**

DEGREE 1st Semester  
(Arts / Science / Commerce /  
..... ) Exam., **2017**  
Subject .....  
Paper .....

**To be filled in by the Candidate**

DEGREE 1st Semester  
(Arts / Science / Commerce /  
..... ) Exam., **2017**  
Roll No. ....  
Regn. No. ....  
Subject .....  
Paper .....  
Descriptive Type  
Booklet No. B .....

**INSTRUCTIONS TO CANDIDATES**

- 1. The Booklet No. of this script should be quoted in the answer script meant for descriptive type questions and vice versa.
- 2. This paper should be ANSWERED FIRST and submitted within 1 (one) Hour of the commencement of the Examination.
- 3. While answering the questions of this booklet, any cutting, erasing, overwriting or furnishing more than one answer is prohibited. Any rough work, if required, should be done only on the main Answer Book. Instructions given in each question should be followed for answering that question only.

*Signature of  
Scrutiniser(s)*

*Signature of  
Examiner(s)*

*Signature of  
Invigilator(s)*

2 0 1 7

( 1st Semester )

BACHELOR OF COMPUTER APPLICATION

Paper No. : BCA-105P

( Programming in C )

( Practical )

Full Marks : 75

Time : 3 hours

*The figures in the margin indicate full marks  
for the questions*

SECTION—A

Answer *any two* questions

1. Write a program to search for an item in  $n$  number of elements using linear search. 10
2. Write a program to find the sum of first 100 odd nos. and even nos. 10
3. Write a program to find the largest and smallest numbers in an array. 10

4. Write a program to display the first 25 Fibonacci nos. 10

SECTION—B

Answer *any two* questions

5. Print the details of students like R\_no, Name, Address, City, Phone on screen (use structures). 15
6. Write a C program to arrange the accepted numbers in ascending order or descending order using bubble sort. 15
7. Create one text file, store some information into it and print the same information on terminal. 15

SECTION—C

8. Viva 15
9. Record book 10

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