20A741

B.C.A. EXAMINATION, 2021

(First Semester)

(C-Scheme) (Main & Re-appear)

(BCA)

BCA101C

INTRODUCTION TO COMPUTER AND IT

Time : 2½ *Hours*]   [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. (a) Define firmware.

   (b) Differentiate between Interpreter and Compiler.

   (c) Define Computer Topology.

   (d) Explain process of inserting graphics in presentation.

   (e) What is the use of autofill options in excel ?

2. What is memory hierarchy ? Explain it with suitable diagram.

3. Explain the classification of Computer based upon their size.

4. What is a flow chart ? Draw a flow chart to find the smallest of three numbers.

5. Define programming language. Explain various generation of programming language.

6. What is a web search engine ? How does it work ? Explain.

7. Differentiate between Analog and Digital transmission methods. Also explain different data transmission mode.

8. Write and explain the purpose of any *five* options available on the Menu Bar of MS Excel Worksheet.

9. (a) List the different methods to move from one slide to different slide during presentation.

(b) How *are* the margins and space managed in a document ? Explain with some examples.

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BCA103C

PROGRAMMING IN 'C'

Time : 2½ Hours]   [*Maximum Marks : 75*

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. (a)   Illustrate the significance of modular programming.

    (b)   Summarize the rules for naming identifiers in 'C' language.

    (c)   What is a variable ? Explain the ways to declare scope of a variable.

2. (a)   List and explain the logical and relational operators in 'C' language.

    (b)   Enlist the significance of library functions.

    (c)   List and explain the data types of 'C' language.

3. (a)   Write a 'C' program that reads a given integer number and checks whether it is a palindrome or not.

    (b)   Compare the working of three looping constructs of 'C' language giving their constructs.

4. (a) Write an algorithm to find the angle between hour and minute hands of a clock at a given time.

   (b) Write a program in C to find the largest of 3 positive integer numbers using conditional operators.

5. (a) Describe the concept of recursion. Also write a program to print the table of a given number using recursion.

   (b) Write a 'C' function to find the largest and smallest in a given array of integers of size 'n' by using call by reference.

6. (a) List and explain the storage classes of 'C' language.

   (b) Write a program to find the multiplication of matrices A and B. The dimension of matrix A is 2*3 and the dimension of matrix B is 3*3.

7. (a) Ram is working on a project which requires returning multiple values from a function. He observed that a return statement can only be used to return a single value from a function. How the function should be implemented so that multiple values can be returned by Ram ?

   (b) Compare and contrast structures and unions. Use a suitable example in support of your answer.

8. (a) Elaborate the significance of nested structures with an example.

   (b) Write a function in 'C' language that sorts the array of 'n' integers using selection sort algorithm.

9. (a) List the arithmetic operators available in increasing order of precedence.

   (b) What is the meaning of base address of the array ?

   (c) What are Pointers ? Explain.

   (d) Write a 'C' program to copy a source string into a destination string.

   (e) Differentiate between 'break' and 'continue' statements.

20A744

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HUM101BC

COMMUNICATION SKILL-I

Time : 2½ Hours]   [*Maximum Marks : 75*

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. What are the various channels of communication ? What is their significance ? Also talk about the media which is used in those channels of communication.

2. What is the process of Communication ? What are the various skills needed for effective communication ?

3. How is body language important in oral communication ? Describe in detail some of the aspects of body language which can prove helpful in non-verbal communication.

4. What is the difference between listening and hearing ? What are the major barriers to effective listening ? Also write what should be our behavioural responses as listener to make communication more fruitful ?

5. What were the terms of the bet between the banker and the lawyer in Anton Chekov story 'The Bet'. Is the ending of the story convincing ? What is the message of the story ?

6. Answer the short answer type questions :

   (a) What are the *three* questions of the king in the story by Leo Tolstoy ?

   (b) What were the king's feelings after learning the identity of the wounded man ?

   (c) What is the theme of the story 'Am I Blue ?' by Alice Walker.

7. Correct any *fifteen* of the following sentences :

   (i) He left the college latest of all.

   (ii) Tea is more preferable than coffee.

   (iii) This is the most ideal couple.

   (iv) He is the oldest of my uncle's *three* sons.

   (v) He is more cleverer than any other boy.

   (vi) We met him prior than his departure.

   (vii) Of the two prices buy the least expensive.

   (viii) He came latter than I.

   (ix) The enemy is becoming weak day by day.

   (x) This news is much surprising.

   (xi) He died comparatively younger.

   (xii) It is very hot to go outside.

   (xiii) Home made sweets are generally too wholesome.

   (xiv) Did you do it ? Yes I did not.

   (xv) He goes to Delhi often.

   (xvi) Firstly I want a pen.

   (xvii) I could find it nowhere.

8. Choose the right alternative and fill in the blanks :

(i) Who (gives/does give) you food and money ?

(ii) What (caused/did cause) the accident ?

(iii) What is she ? She is (mary/a nurse).

(iv) Do you know who (she is/is she) ?

(v) Who is he ? He is (a teacher/Rakesh)

(vi) One shouldn't betray (his/one's) friends.

(vii) He is not such a man (who/as) can help us.

(viii) She isn't the girl (that/who) she was before marriage.

(ix) (Unless/If/In case) you work hard, you will not succeed.

(x) He is very dull (but/and/still) his brother is very sharp.

(xi) Start early (lest/in case) you should miss the class.

(xii) He continued to be lazy (when/since) he was fourteen.

(xiii) Men work (in case/that/so that) they may earn a living.

(xiv) The lion lay down (when/as if) he were dead.

(xv) He had gone away (before/when) I came.

9. Attempt any *three* parts :

(a) Rewrite these sentences as directed :

(i) She had the capacity to help the poor and she did. (Use 'be able to')

(ii) He lived in London but he doesn't live here now.   (Use 'used to')

(iii) Please switch on the radio.   (Use 'would you mind')

(iv) It is not necessary for her to buy another car.   (Use needn't)

(v) It is necessary for him to get up early.   (Use 'have to')

(b) Rewrite the sentences using punctuation marks and capitals :

(i) The principal is in his chamber.

(ii) are there novolunteers for this mission.

(iii) What nonsense i shall never agree to his demands.

(iv) He said I m too busy to go out.

(v) Who on earth are you she asked ?

(c) What is the message of Leo Tolstoy through his story 'Three Questions' ?

(d) What prompts Alice Walker to say 'I am eating misery', I thought, as I took the first bite. And spit it out' ?

(e) What do you mean by having good communication skills ?

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MATHS111C

MATHEMATICS-I

Time : 2½ Hours]   [*Maximum Marks : 75*

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. (a) If A = {2, 3}, B = {6, 8}, C = {1, 2} and D = {6, 9}, then verify that :

$$(A \times B) \cap (C \times D) = (A \cap C) \times (B \cap D)$$

(b) Prove that Cartesian product of two countable sets is countable.

2. (a) Show that the relation R in the set of natural numbers N defined by $x\text{R}y$ if $x^2 - 4xy + 3y^2 = 0$, $\{x, y \in \text{N}\}$ is reflexive, not symmetric and not transitive.

(b) Find the inverse of the function $f(x) = 3x + 4$.

3. (a) If $A = \begin{bmatrix} 1 & 4 \\ 3 & 2 \\ 2 & 5 \end{bmatrix}$ and $B = \begin{bmatrix} -1 & 2 \\ 0 & 5 \\ 3 & 1 \end{bmatrix}$, then find the matrix X for which

A + B − X = 0.

(b) Evaluate the determinant :

$$\begin{vmatrix} x+\lambda & x & x \\ x & x+\lambda & x \\ x & x & x+\lambda \end{vmatrix}$$

4. Solve the following system of equations by using Cramer's rule :

$$x + y + z + w = 2$$
$$x - 2y + 2z + 2w = -6$$
$$2x + y - 2z + 2w = -5$$
$$3x - y + 3z - 3w = -3$$

5. (a) The fourth term of an A.P. is equal to three times the first term and the seventh term exceeds twice the third term by one. Find the first term and the common difference.

(b) Derive a relationship between A.M. and G.M.

6. (a) The product of first three terms of a G.P. is 1000. If we add 6 to its second term and 7 to its third term, the resutling three terms form an A.P. Find the terms of G.P.

(b) Find the sum of the series :

$$1 - \frac{3}{2} + \frac{5}{4} - \frac{7}{8} + \dots$$

7. (a) The A.M. of 9 items is 15. If one more item is added to this series, the A.M. becomes 16. Find value of 10th item.

(b) Find the median for the following *f.d.* :

x	:	0	1	2	3	4	5	6
y	:	5	9	10	12	6	4	2

8. (a) A student obtained the A.M. and S.D. of 100 observations as 40 and 5.1 respectively. Later on it was discovered that he had wrongly copied down an observation as 50 instead of 40. Calculate the correct value of S.D.

(b) Explain the following :

   (i)   Inter Quartile Range

   (ii) Percentile Range.

   Also give the method to computation of the above.

9. (a) If A = {1, 4, 6, 10}, B = {2, 3, 6, 7, 10, 12}, then find A $\cup$ B, A $\cap$ B, A $-$ B and B $-$ A.

   (b) Show that the following points are collinear :
   $$(b,\ c + a)\ (c,\ a + b)\ (a,\ b + c)$$

   (c) Find four terms in A.P. whose sum is 20 and the sum of whose square is 120.

   (d) Enumerate the measures of central tendencies along with one limitation.