BC-101

Maths Foundation

BCA 1st Sem.(2019-22)

Time : 3 hours *Full Marks : 80*

Candidates are required to give their answers in their own words as practicable.

The questions are of equal value.

Answer any five questions.

1. Find the Eigen values and Eigen Vectors of the following matrix:

   (a) $A = \begin{bmatrix} 1 & 1 \\ 3 & -1 \end{bmatrix}$

   (b) $B = \begin{bmatrix} 3 & 2 & 2 \\ 2 & 2 & 0 \\ 2 & 0 & 4 \end{bmatrix}$

2. Find the inverse of the matrix:

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

3. Find the rank of the matrix:

$$A = \begin{bmatrix} 1 & 2 & 3 & 4 \\ 2 & 4 & 6 & 8 \\ -1 & -2 & -2 & -4 \end{bmatrix}$$

P.T.O.

4. Find the max^m and min^m of the function

$$f(x,y) = x^3 + y^3 - 3x - 12y + 10$$

5. (a) If $Z = \tan^{-1}\left(\frac{2xy}{x^2 - y^2}\right)$,

Prove that $Z_{xx} + Z_{yy} = 0$

(b) If $u = \sin^{-1}\left(x/y\right)$,

Prove that $\frac{x \cdot \delta u}{\delta x} + \frac{y \cdot \delta u}{\delta y} = 0$

6. Solve:

$$(x^2 + y^2).\frac{dy}{dx} = 2xy$$

7. Integrate:

$$\int_0^{\frac{\pi}{2}} \sqrt{1 + \sin x}.dx$$

8. (a) $I = \int_0^2 \int_1^2 (x^2 + y^2) dx\,dy$

(b) $I = \int_0^1 \int_{x^2}^{2-x} xy \; dx.dy$

9. Solve the following differential equation:

$$(x + y)^2.\frac{dy}{dx} - 2(x + y)^2 + 3 = 0$$

10. Write Short notes one:

(a) Inverse Matrix (b) Transpose Matrix

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BC-102

Comp. Fundamental

BCA 1st Sem.(2019-22)

Time : 3 hours *Full Marks : 80*

Candidates are required to give their answers in their own words as practicable.

The questions are of equal value.

Answer any five questions

1. What is Secondary Storage devices ? How does direct access differ from Sequential access in Memory read / write operation ?
2. List out some important characteristics of computer. How many types of computer system ? Explain them.
3. Define the Software. List and explain the types of software. Give two example of each category.
4. What is an Operating System ? Explain All the Four types of Operating Systems.
5. Diffcrentiate between the characteristics of primary and secondary Memory of computer.
6. What is data processing ? Differentiate between Data and information. Which is more useful to the people?
7. How Many types of Computer System ? Explain them.

P.T.O.

8. What is a Computer? Draw a block diagram of a computer System and discuss the functionalities of each in detail. Explain different generations of Computer.

9. Define the terms :-
   Compiler, Interpreter, Assembler, Loader and Linker

10. Discuss the Concept of output. Explain different types of printers used as output devices.

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BC-103

Bus. Comm. & Inf. Sys.

BCA 1st Sem.(2019-22)

Time : 3 hours *Full Marks : 80*

Candidates are required to give their answers in their own words as practicable.

The questions are of equal value.

Answer any five questions.

1. Define the term communication. Explain the Various characteristics of communication.
2. What do you mean by Sales letter ? Explain in detail about the AIDA theory/approach of Writing any sales letter.
3. Discuss in detail about 8 C'S of letter Writing.
4. Explain the various Skills that are evaluated during a Group discussion.
5. What do you mean by " Presentation ". Discuss the steps for effective Presentation.
6. What is the MIS ? Explain the functions of MIS.
7. What is the OAS ? Explain the role of OAS in Organisation.
8. What is the Concept of Management Information System? Discuss its importance.

P.T.O.

9. What is the Information ? What are its Characteristics.

10. What is the DSS ? Discuss the Simon's Model of decision making.

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BC-104

C Programming

BCA 1st Sem.(2019-22)

Time : 3 hours *Full Marks : 80*

Candidates are required to give their answers in their own words as practicable.

The questions are of equal value.

Answer any five questions.

1. What is "C" language. Write down the features and application of "C" language.
2. What is loop ? Discuss the Types of loop.
3. Write a "C" Programme to enter a Number check that given number is prime Number or NOT.
4. (a) Write a "C" programme to print the following series of *n* given term.

   [0,1,2,3,5,8,13,21.....*n*]

   (b) Write a "C" programme to Enter a number, print Sum and reverse of the number using Function.
5. Explain parameter passing Technique. Distinguish between call by value and call by value by reference method with example.

P.T.O.

6. (a) Explain any Five String Handling Function.

   (b) Write a "C" programme to Enter a string. Print how many words are present in the given string.

7. What is pointer. Write a "C" programme using pointer and print the Sum of *n* natural number.

8. What is structure. Write a "C" programme to enter students name, roll number, fee and marks. Display Students name, roll number, fee and marks using structure.

9. What is file ? Discuss the types of files.

10. Write Short notes on any two :

    (a) Library Function in "C"

    (b) Flow Charts

    (c) Nesheng

    (d) Header Files

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