

Bachelor of Computer Application
First Semester Main Examination, Dec-2020
Mathematics-I [BCA101]

Time: 3:00 Hrs**Max Marks 40**

Note: (i) Attempt all questions.
(ii) All questions carry equal mark.

Q.1 Show that the function $f(x) = x^2$ is differentiable in the interval $0 \leq x \leq 1$

Or

Test the function for $f(x) = \begin{cases} 1 + x^2 & \text{When } 0 \leq x \leq 1 \\ 1 - x & \text{When } x > 1 \end{cases}$

Q.2 Find n^{th} differentiable coefficient of $y = \cos x \cos 2x \cos 3x$

Or

If $y = \sin m (\sin^{-1} x)$ then prove that $(1 - x^2) \frac{d^2y}{dx^2} - x \frac{dy}{dx} + m^2y = 0$

Q.3 Solve $\lim_{x \rightarrow 0} \frac{xe^x - \log(1+x)}{x^2}$

Or

Prove that $\int_0^{\pi/2} \frac{dx}{a^2 \cos^2 x + b^2 \sin^2 x} = \pi/2$

Q.4 Find the equation of the normal to (3,3) on the curve $x^3 + y^3 = 6xy$

Or

Find A^{-1} of the matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & 5 \\ 3 & 5 & 6 \end{bmatrix}$

Q.5 Find the rank and nullity of the matrix $A = \begin{bmatrix} 1 & 2 & 0 \\ 2 & 4 & 7 \\ 3 & 3 & 0 \end{bmatrix}$

Or

Solve the system of following equation using matrix method.

$$x + y + z = 6, \quad x - y + z = 2, \quad 2x + y - z = 1$$

Bachelor of Computer Application
First Semester Main Examination, Dece-2020
Statistics-I [BCA102]

Time: 3:00 Hrs**Max Marks 40****Note: (i) Attempt all questions. (ii) All questions carry equal mark.**

Q.1 Simplify $\log \left\{ \frac{3\sqrt{32}}{40x(18^{\frac{1}{3}})} \right\}$ and find the value use log table.

Or

Draw a histogram for the following data.

Marks :	0-10	10-20	20-30	30-40	40-50
No. of students :	2	4	10	4	3

Q.2 Draw the circle (or pie) diagrams from the flow chart :-

	Children	Young	Old	Total
Town A	250	450	200	900
Town B	1000	2250	350	3600

Or

Find the median for the following distribution:-

Wages in Rs.:	0-10	10-20	20-30	30-40	40-50
No. of workers:	22	38	46	35	30

Q.3 Compute the first four central moments for the following individual series.

X: 1 3 5 9 12

Or

If the probability density function of the random variable x is given by

$$f(x) = \begin{cases} 1/3 & - < x < 2 \\ 0 & \text{Otherwise} \end{cases}$$

Q.4 Define negative Binomial distribution find its M.G.F. and hence mean variance also.

Or

Define normal probability distribution. If the mean of a normal population and its variance σ^2 where are its median β_1 and β_2 ?

Q.5 Define rank correlation coefficient and define:-

(i) Multiple Correlation

(ii) Partial Correlation

Or

Define lines of regression in a bivariate distribution are $x + 9y = 7$ and $y + 4x = 16.33$ find r x y and hence b_{xy} and b_{yx} .

Bachelor of Computer Application
First Semester Main Examination, Dec-2020
Physics - I [BCA103]

Time: 3:00 Hrs

Max Marks 40

Note: Attempt all questions. All questions carry equal marks.

Q.1 Define electric potential. Obtain expression for potential at a point due to a point charge.

OR

Explain dielectric polarization in polar and non-polar molecule.

Q.2 Describe a method to determine the susceptibility of a ferromagnetic material.

OR

Explain what do you understand by magnetic flux and magnetic flux density.

Q.3 What is Ohm's law?

OR

Explain parallel LCR Circuit?

Q.4 Explain Norton's Theorem.

OR

Write a short note on maximum power transfer Theorem.

Q.5 What is Super Conductivity also explain effect of Magnetic field Quail.

OR

Write a short note on type I & type II Super Conductors.

Bachelor Of Computer Application

First Semester Main Examination, Dec-2020

Programming & Problem Solving Through C-I [BCA104]

Time: 3:00 Hrs

Max Marks 50

Note : Attempt any Five questions. All questions carry equal mark

Q.1 Explain modular programming.

OR

What is flowchart? Explain with example.

Q.2 What is structure of C programme?

OR

What is data type in C? Explain classification of data type.

Q.3 What is operators? Explain any five operators.

OR

What is global variable and local variable? Explain with example.

Q.4 Write a program use of Print f () and Scan f ().

OR

Define the type of Specifire.

Q.5 What is function? Explain predefine and user define function with example.

OR

What is pointer? Print any number of addresses using pointer variable.

Bachelor of Computer Application
First Semester Main Examination, Dec-2020
PC SOFTWARE [BCA105]

Time: 3:00 Hrs

Max Marks 50

Note: (i) Attempt all questions.

(ii) All questions carry equal mark.

Q.1 What is Computer? Explain its applications?

OR

Difference between Compiler & Interpreter.

Q.2 Explain the block diagram of computer system.

OR

Describe the programming language.

Q.3 Difference between hardware & software.

OR

Explain Input and Output device.

Q.4 Explain Assembly Language.

OR

What are the three main purpose of an operating system.

Q.5 What is MS Excel? How to insert and deleting row.

OR

What is Management information system.

Bachelor of Computer Application
First Semester Main Examination, Dec-2020
English [BCA106]

Time: 3:00 Hrs

Max Marks 40

- Note:** (i) Attempt all questions.
(ii) All question carry equal marks.
(iii) Attempt any two part of each question.

Q.1 In what will Ghalib's distress end?

Or

What is the significance of fundamental rights?

Q.2 What is the Significance of Trimurti of Elephanta.

Or

Define Regionalism.

Q.3 Which are the two most important aspects of Indian constitution?

Or

What is the content of Atharva Veda?

Q.4 Write an application to the Registrar of your University to issue your duplicate Mark-sheet.

Or

Write a letter to your friend for thanking him for the wonderful winter vacation you spent him.

Q.5 Write essays on the following topics Cybercrime or Role of Media

Or

Do as directed:-

- i) While i was waiting _____the bus. I kept my bag _____this bench (Insert preposition)
- ii) The Chief guest gave away the prizes (make passive)
- iii) Mukesh makes delicious desert (change voice)
- iv) The plane flew_____the clouds (over, above) Write synonym of image, define painful.
- v) Tigers live_____ forest (in/ at)