

BCA - PART - II

Calculus & Differential Equations

- 1 If $y^{\frac{1}{m}} + y^{-\frac{1}{m}} = 2x$, then prove that :

$$(x^2 - 1)y_{n+2} + (2n + 1)xy_{n+1} + (n^2 - m^2)y_n = 0$$

- 2 Find 'C' of mean value theorem if :

$$f(x) = x^3 - 5x^2 - 3x, \quad a = 1, \quad b = 3$$

- 3 Apply Maclaurin's theorem to prove that :

$$\log \sec x = \frac{1}{2}x^2 + \frac{1}{12}x^4 + \frac{1}{45}x^6$$

- 4 Find the asymptotes of the following curve :

$$y^3 - 5xy^2 + 8x^2y - 4x^3 - 3y^2 + 9xy - 6x^2 + 2y - 2x + 1 = 0$$

- 5 If $x^x y^y z^z = c$, then show that :

$$\frac{\partial^2 z}{\partial x \partial y} = -(x \log_e x)^{-1} \text{ where } x = y = z.$$

BCA - PART - II
DBMS & ORACLE

- 1 (a) Write the syntax of *select* and *project* commands of relational algebra.
(b) Discuss join operation and its type using suitable example.
(c) Explain various integrity constraints of Relational Algebra.
- 2 (a) Explain the concept of normalization. Also explain 1NF, 2NF, 3NF with example.
(b) Explain multivalued and join dependency with example.
- 3 Explain the concept of 4NF and 5NF.
- 4 Explain select command with their syntax and suitable example.
- 5 Explain command to create a table and also to insert multiple records in the table in ORACLE.

BCA -PART - II
Programming in C++

- 1 Write a CPP program to demonstrate the concept of object oriented programming.
- 2 What is procedural language ? What are the problems in procedural language and how it overcomes in OOPs ?
- 3 Write short notes on any *two* of the following :
 - (i) Object
 - (ii) Inheritance
 - (iii) Class
- 4 What is inheritance ? Explain the different types of inheritance.
- 5 Write a CPP program to demonstrate constructor and destructor.

BCA - PART-II
Computer Networks

- 1 What is Computer Network ? Discuss various components of data communication.
- 2 What is meant by topology ? Explain the topologies of the network.
- 3 Write short notes on the following :
 - (i) Pulse code modulation
 - (ii) Time division multiplexing
- 4 Explain ISO/OSI reference model with neat diagram.
- 5 Compare and contrast between ISO-OSI models to that of TCP/IP reference model.

BCA - PART - II
Operating System & Linux

- 1 Compare GNOME and KDE environments.
- 2 How can we edit menu of KDE application launches ? What editing operations can be performed ?
- 3 Explain installation process in Linux.
- 4 What are various file permission for users and groups ? Explain with syntax and example.
- 5 Explain the file system management of Linux. How “mount” command is used for a file system ?

BCA – PART –II

Foundation Course

1. Write about key features of Indian sculpture arts.
2. What is the ideology behind the rise of Vedic culture in India.
3. Write outcome of Non-cooperation movement.
4. Explain main features of Indian Constitution.
5. Explain various types of classical dances in India.