

**PJ-582**

1 Semester M.C.A. Examination, February - 2020
(CBCS Scheme)

COMPUTER SCIENCE

MCA - 104T : Discrete Mathematics

Time : 3 Hours

Max. Marks : 70

PART - A

Answer any five questions. Each question carries six marks.

5×6=30

1. (a) Suppose $A, B \subseteq \mathbb{Z} \times \mathbb{Z}$ with $A = \{(x, y) | y = 5x - 1\}$, $B = \{(x, y) | 3x - y = -7\}$. Find $\overline{A \cup B}$. 3+3
(b) For any set A , prove that $A \times \phi = \phi \times A = \phi$.
2. (a) Let $A = \{1, 2, 3, 4, 6, 8, 12\}$. On A , define the partial ordering relation R by xRy if and only if x divides y . Draw the Hasse diagram for R . 3+3
(b) Let $f, g : \mathbb{R} \rightarrow \mathbb{R}$, are defined by $f(x) = 3x + 7$ and $g(x) = x(x^2 - 1)$ for all $x \in \mathbb{R}$. Verify that f is one-one but g is not.
3. Use mathematical induction to prove that $1^2 + 2^2 + 3^2 + \dots + n^2 = \frac{n(n+1)(2n+1)}{6}$ where $n \in \mathbb{Z}^+$. 6
4. Prove that $R \rightarrow S$ is a valid conclusion from the premises $P \rightarrow (Q \rightarrow S)$, $\neg R \vee P$, and Q . 6
5. A collection of 10 electric bulbs contain 3 defective ones. 2+2+2
(i) In how many ways can a sample of 4 bulbs be selected ?
(ii) In how many ways can a sample of four bulbs be selected which contain 2 good ones and 2 defective ones ?
(iii) In how many ways can the sample of 4 bulbs be selected so that either the sample contains 3 good ones and 1 defective ones or 1 good and 3 defective ones ?
6. Show that the open interval $(0, 1)$ is uncountable. 6
7. Prove that every set of 37 positive integers contain at least two integers that leave the same remainders upon division by 36. 6

P.T.O.

Mca 2nd Sem Previous Year Question Paper

Rajiv Chopra



Mca 2nd Sem Previous Year Question Paper:

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Arkansas Methodist ,1917 Midland Schools ,1910 **Scarlet and Black** ,1896 The Round Table ,1909 The Breeder's Gazette ,1891 **Index of Mathematical Papers** ,1985 **New Breeder's Gazette** ,1891 **Michigan Christian Advocate** ,1912 **Who's who in America** John William Leonard,Albert Nelson Marquis,1901 Vols 28 30 accompanied by separately published parts with title Indices and necrology *Messenger and Visitor* ,1917 **The Epworth Herald** ,1897 **The New York Times Encyclopedia of Film: 1969-1971** ,1984 **Catalogue of the London Library, St. James Square, London. Supplement: 1920-1928** London Library,Charles Theodore Hagberg Wright,Sir Charles Theodore Hagberg Wright,Christopher James Purnell,1953 **Mathematical Reviews** ,2004 **Anthropology Newsletter** ,1991 *Linguistics and Language Behavior Abstracts* ,2009-02 **The Christian Union** ,1889

Mca 2nd Sem Previous Year Question Paper Book Review: Unveiling the Magic of Language

In an electronic digital era where connections and knowledge reign supreme, the enchanting power of language has become apparent than ever. Its capability to stir emotions, provoke thought, and instigate transformation is really remarkable. This extraordinary book, aptly titled "**Mca 2nd Sem Previous Year Question Paper**," compiled by a very acclaimed author, immerses readers in a captivating exploration of the significance of language and its profound effect on our existence. Throughout this critique, we will delve into the book's central themes, evaluate its unique writing style, and assess its overall influence on its readership.

https://www.splashdogs.com/book/Resources/index.jsp/Hitchhikers_Guide_To_The_Galaxy_Movie.pdf

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