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MCS-013

MCA(Revised)

Term-End Examination

June, 2014

05648

MCS-013 : DISCRETE MATHEMATICS

Time : 2 hours *Maximum Marks : 50*

Note : *Question number **1** is **compulsory**. Attempt **any three** questions from the rest.*

1. (a) Let $f(x) = \frac{1}{x}$ and $g(x) = x^3 + 2$ where $x \in \mathbf{R}$. Find $(f+g)(x)$ and $(fg)(x)$? **3**

(b) Draw Venn diagram to represent $A \Delta B$ where A and B are two sets. **3**

(c) If A and B are two mutually exclusive events such that P(A) = 0.3 and P(B) = 0.4 What is the probability that either A or B does not occur ? **2**

(d) Prove that **3**

$$\frac{1}{1.2} + \frac{1}{2.3} + \ldots + \frac{1}{n(n+1)} = \frac{n}{n+1}$$ using Mathematical Induction.

(e) Show that $p \vee (q \wedge r)$ and $(p \vee q) \wedge (p \vee r)$ are logically equivalent. **3**

(f) Prove that product of two odd integers is an odd integer ? **3**

(g) How many different strings can be made from the letters of the word "SUCCESS" using all the letters ? **3**