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BCA-2
1st Year Examination, Calendar Batch 2017
Mathematics

Time : 3 Hours]

[Max. Marks : 100

Note. Attempt any five questions. Each questions carry equal marks.

Q.1 Evaluate

$$\int \frac{\sin^8 x - \cos^8 x}{1 - 2\sin^2 x \cos^2 x} dx$$

Q.2 A market research group conducted a survey of 1000 consumers and reported that 720 consumers liked product A and 450 consumers liked product B. What is the least number that must have liked both products?

Q.3 Briefly explain type's f matrices with examples?

Q.4 Differentiate with respect to x the following

$$\frac{3x + 2}{(x + 5)(2x + 1) + 3}$$

Q.5 Prove that $A - (B \cap C) = (A - B) \cup (A - C)$

Q.6 Prove that ${}^nC_r + {}^nC_{r-1} = {}^{n+1}C_r$

Q.7 Discuss the continuity of the $[1 - x] + [x - 1]$ at $x = 1$ function

Q.8 Define an invertible mapping. Prove that the inverse of an invertible mapping is invertible?

