



Winter Semester 2019-2020

Continuous Assessment Test - I

Programme Name & Branch: B. Tech.

Course Name & Code: MAT 1014 Discrete Mathematics and Graph Theory

Slot: A2+TA2+TAA2

Exam Duration: 90 minutes

Maximum Marks: 50

Answer All the Questions $(5 \times 10 = 50)$

Y. Find the PDNF and PCNF of $(p \wedge q) \vee (p \wedge r) \vee (q \wedge r)$.

(i) With truth table method (ii) without truth table method.

2. (i) Prove that $\neg (p \land q) \rightarrow (\neg p \lor (\neg p \lor q)) \Leftrightarrow (\neg p \lor q)$.

(ii) Test the validity of the following arguments:

If milk is black then every crow is white.

If every crow is white then it has 4 legs.

If every crow has 4 legs then every Buffalo is white and brisk.

The milk is black.

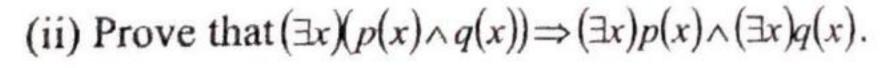
So, every Buffalo is white.

3. (i) Show that the following statement is valid.

All men are mortal

Socrates is a man

Therefore Socrates is a mortal.





4. Prove that $(\forall x)(P(x)\lor Q(x))\Rightarrow (\forall x)(P(x))\lor (\exists x)(Q(x))$ using indirect method.

5. Show that the set of all real (2×2) matrix $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$, $ad-bc \neq 0$ is a group under matrix multiplication as binary operation.

Join VIT Question Papers On Telegram By Scanning The QR Or By Simply Searching It On Telegram