



الاسم كاملا باللغة العربية

Mid-Term Exam (10/25) + Academic Assignments (15/25)

Mid-Term Exam of Discrete Math (BSD-103)

Module-A

Module-A

First Question (10 Marks)

- ① Use mathematical induction to $x^{2n} - y^{2n}$ is divisible by $(x + y)$ for $n = 1, 2, \dots$

- ② For the relation R on $X = \{1, 2, 3, 4\}$ defined by the rule $(x, y) \in R, x + 1 \leq y$.

- ① Find the relation R

- ② Give the graphical representation

- ③ Give the matrix representation of R ④ identify that if R is reflexive, symmetric or transitive.

Second Question (15 Marks)

❶ Prove that if x^2 is even, then x is also even.

❷ Let $S_n = \{2k(n+1)^2 \mid k = 1, 2, 3\}$, find $\bigcup_{n=1}^3 S_n$.

❸ Simplify the following statement: $(p \wedge q) \vee (p \wedge \bar{q}) \vee (\bar{p} \wedge \bar{q})$ by using logical equivalence rules.

انتهت الأسئلة

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