End Semester Examination (Discrete Mathematics (MA221))

*Required

What is simple graph? Explain why no simple graph can have degree sequence (6, 4, 3, 3, 2, 2). *

2 points

A GRAPH IS SIMPLE IF IT HAS NO PARALLEL E

---

*

1 point

Let, $P(x)$ denote the statement "$x = x + 7$". What is the truth value of the quantification $\exists x P(x)$, where the domain consists of all real numbers?

- ○ True
- ◉ False
- ○ It can be true
- ○ None

In a capacited flow network if f(e) and c(e) are flow along edge e and capacity of edge respectively then *   1 point

- ☑ c(e) ≥ f(e)
- ☐ f(e)≥c(e)
- ☑ f(e), c(e)≥0
- ☐ 0≥f(e), c(e)

Define abelian group. Why every subgroup of an abelian group is normal. *   2 points

An abelian group is a group in which the law of

Suppose repetitions are not permitted. (1)How many three-digit numbers   2 points
can be formed from the six-digits 2,3,5,6,7 and 9? (2) How many of these
numbers are less than 400? *

(1) 6*5*4 = 120 Numbers (2) 2*5*4 = 40 Numb

Which of the following does not hold for operations on sets? *   1 point

- ☐ (X ∩ Y)'=X'∪Y'
- ☐ (X ∪ Y)∩Z=(X ∩Z)∪(Y∩Z)
- ☑ X-Y=Y-X
- ☐ (X ∩ Y)∪Z=(X ∪Z)∩(Y∪Z)
- ☐ (X ∪ Y)∩X=X
- ☑ (X ∪ Y)∩X=Y

*   1 point

$p \leftrightarrow q$ is logically equivalent to

$$(p \to q) \to (q \to p)$$

○ Option 1

$$(p \to q) \lor (q \to p)$$

○ Option 2

$$(p \to q) \land (q \to p)$$

◉ Option 3

$$(p \land q) \to (q \land p)$$

○ Option 4

Define cnf and dnf of statement variables. *   2 points

A COMPOUND PROPOSITION (OR FORMULA) \

A K3,3 graph is _____ graph. *

1 point

- ☑ non-planar
- ☐ planar
- ☑ regular
- ☐ complete
- ☑ bipertite

A self-complemented distributive lattice is called *

1 point

- ○ Complete lattice
- ○ Self dual lattice
- ○ Modular lattice
- ◉ Boolean algebra

Let A , B be non empty sets f : A → B be a permutation. Then___ *

1 point

- ☑ f is bijective and A = B
- ☐ f is one one and A ≠ B
- ☐ f is onto and A ≠ B
- ☐ f is bijective and A ≠ B

Define equivalence relations and Poset. *

2 points

A RELATION R ON SET A IS SAID TO BE EQUIV.

What is order of a group? State Lagrange's theorem for finite groups. *   2 points

THE ORDER OF GROUP IS NUMBER OF ELEME

The chromatic number of a complete graph having n vertices is *   1 point

- ◯ n/2
- ⦿ n
- ◯ n-1
- ◯ 2n

Back   Submit