

Quiz 1

Subject: Discrete Mathematics

Total 25 marks

Date 29th Sep 2021

1. What is the correct translation of the following statement into mathematical logic (predicate logic)?
 - I. Some students are intelligent
 - II. None of my students are stupid

(5 M)
2. Among 150 faculty members in an institute, 85 are connected with each other through Facebook and 60 are connected through WhatsApp. 20 faculty members do not have Facebook or WhatsApp accounts. How many faculty members are connected only through Facebook accounts?

(5 M)
3. Show that the premises “A student in this class has not read the book,” and “Everyone in this class passed the first exam” imply the conclusion “Someone who passed the first exam has not read the book.”

(5 M)
4. Prove that if n is an integer with $10 \leq n \leq 15$ which is a perfect square, then n is also a perfect cube.

(5 M)
5. What is wrong with this “proof”?

“**Theorem**”: If n^2 is positive, then n is positive.
“**Proof** ”: Suppose that n^2 is positive. Because the conditional statement “If n is positive, then n^2 is positive” is true, we can conclude that n is positive

(5 M)

---Good Luck---