VIRTUAL UNIVERSITY

MTH202
QUIZ #3, 4
FOR FINAL TERM
SPRING 2025
BY
BUTTERCUP
FOR LMS HANDLING
CONTACT: 0324-9427076

Question # 10 of 10 (Start time: 11:38:24 PM, 10 July 2025)

A student can choose a computer project from one of the two lists. The two lists contain 12 and 18 possible projects, respectively. How many possible projects are there to choose from ?

Select the correct option

- (●) 30
- ( ) 18
- ( ) 12
- ( ) 216

Question # 9 of 10 (Start time: 11:37:42 PM, 10 July 2025)

A student is to answer five out of nine questions on exams. Find the number of ways that can choose the five questions.

Select the correct option

Relo

○	316
○	None of these
◉	126
○	216

Click to Save Answer & Move

MTH202 - Discrete Mathematics (Quiz 4)

Question # 8 of 10 (Start time: 11:36:52 PM, 10 July 2025)

Let X = {1, 2, 3}, then 2-combinations of the 3 elements of the set X are _____ ?

Select the correct option

○	{1, 2}, {2, 1}, {1, 3}, {3, 1}, {2, 3}, and {3, 2}
○	{1, 2}, {2, 1}, {1, 3} and {2, 3}
○	{1, 2}, {2, 1},{1, 3} and {3, 1}
◉	{1, 2}, {1, 3} and {2, 3}

Question # 7 of 10 (Start time: 11:36:34 PM, 10 July 2025)

Find the value of C(n , n)

Select the correct option

○	None of these
○	n
○	0
●	1

Question # 6 of 10 (Start time: 11:36:16 PM, 10 July 2025) **Total Marks:** 1

A student has 3 optional courses in mathematics and 5 optional courses in physics, how many total choices for him to take one course?

Select the correct option

- (●) 8
- ( ) 35
- ( ) 7
- ( ) 9

Click to Save Answer & Move to Next Question

MTH202 - Discrete Mathematics (Quiz 4)

Question # 5 of 10 (Start time: 11:35:50 PM, 10 July 2025)

There are three bus lines between A and B, and two bus lines between B and C.
Find the number of ways a person can travel round trip by bus from A to C by way of B ?

Select the correct option

○	6
◉	36
○	5
○	10

MTH202 - Discrete Mathematics (Quiz 4)

Question # 4 of 10 (Start time: 11:35:29 PM, 10 July 2025)

How many 4-bit string contain at least one "1"

Select the correct option

- ○ 12
- ◉ 15
- ○ 16
- ○ 14

Question # 3 of 10 (Start time: 11:39:03 PM, 10 July 2025)

C(n,0)=.....

Select the correct option

●	1
○	n
○	Both b and c
○	C(n,n)

Time Left sec(s)

MTH202 - Discrete Mathematics (Quiz 4) **Quiz Start Time: 11:34 PM, 10 July 2025**

Question # 2 of 10 (Start time: 11:34:40 PM, 10 July 2025) **Total Marks:** 1

If one event can occur in n_1 ways, a second event can occur in n_2 ways, a third event can occur in n_3 ways, how ways in which exactly one of the events can occur?

Select the correct option

Reload Math Equations

- ○ $n_1 . n_2 . n_3$
- ◉ $n_1 + n_2 + n_3$

Click to Save Answer & Move to Next Question

MTH202 - Discrete Mathematics (Quiz 4)

Question # 1 of 10 (Start time: 11:34:12 PM, 10 July 2025)

In how many ways can a set of six letters be selected from the English Alphabets?

Select the correct option

○	C(6 , 26)
◉	C(26 , 6)
○	C(14 , 6)
○	None of these

Maxwell's second equation is expressed as _____:

Select the correct option

○	$\nabla \times B = 1$
○	$\nabla \times B = 0$
●	$\nabla \cdot B = 0$
○	$\nabla \cdot B = 1$

The resolving power of a telescope can be increased by:

Select the correct option

●	increasing the lens diameters
○	increasing the objective focal length and decreasing the eyepiece focal length
○	inserting a correction lens between objective and eyepiece
○	decreasing the lens diameters

The relationship between the linear and volumetric expansion coefficients is:

Select the correct option

○	$\alpha = \beta^3$
○	$\beta = \alpha^3$
○	$\alpha = 3\beta$
◉	$\beta = 3\alpha$

What is the correct expression for relativistic momentum $\vec{p}$?

Select the correct option

○	$\vec{p} = \frac{m\vec{u}}{\gamma}$
●	$\vec{p} = \gamma m\vec{u}$
○	$\vec{p} = m\vec{u}$
○	$\vec{p} = \sqrt{\gamma m\vec{u}}$

A free electron and a free proton have the same kinetic energy. This means that, compared to the matter wave associated with the proton, the matter wave associated with the electron has:

Select the correct option

- a shorter wavelength and the same frequency
- a longer wavelength and a greater frequency
- a shorter wavelength and a greater frequency
- a longer wavelength and the same frequency

If an electron of charge is accelerated through a potential difference V, it will acquire energy

Select the correct option

◉	Ve
○	V/2
○	2V
○	E/2

Which property of light causes the formation of Newton's rings?

Select the correct option

- ○ Diffraction
- ○ Reflection
- ○ Refraction
- ◉ Interference

If two capacitors, each with a capacitance of 100 microfarads, are connected in parallel, what is the total capacitance?

Select the correct option

- (●) 200 microfarads
- ( ) 100 microfarads
- ( ) 150 microfarads
- ( ) 50 microfarads

The primary of a 3:1 step-up transformer is connected to a source and the secondary is connected to a resistor R. The power dissipated by R in this situation is P. If R is connected directly to the source it will dissipate a power of:

Select the correct option

- ○ 3P
- ◉ P/9
- ○ P/3
- ○ P

Copy Question

When two gases separate by a diathermal wall are in thermal equilibrium with each other:

Select the correct option

○	Only their volumes must be the same
○	Only their pressures must be the same
◉	Only their temperatures must be the same
○	They must have the same number of particles

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MTH202 - Discrete Mathematics (Quiz 3)

Question # 10 of 10 (Start time: 11:40:27 PM, 08 July 2025)

'Reductio ad absurdum' is another name of ----------

Select the correct option

- ○ Direct Method of proof
- ◉ proof by contradiction
- ○ proof by contrapositive
- ○ None of these.

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MTH202 - Discrete Mathematics (Quiz 3)

Question # 9 of 10 (Start time: 11:39:40 PM, 08 July 2025)

While proofing by contraposition the equivalence .....is used.

Select the correct option

- ○ $\sim p \rightarrow \sim q \equiv \sim q \rightarrow \sim p$
- ○ $\sim p \rightarrow q \equiv \sim q \rightarrow \sim p$
- ● $p \rightarrow q \equiv \sim q \rightarrow \sim p$
- ○ $p \rightarrow \sim q \equiv \sim q \rightarrow \sim p$

MTH202 - Discrete Mathematics (Quiz 3)

Question # 8 of 10 (Start time: 11:39:11 PM, 08 July 2025)

The predicate which describes the initial state is called the ---------- of the algorithm

Select the correct option

- (●) pre-condition
- ( ) post-condition

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Question # 7 of 10 (Start time: 11:38:48 PM, 08 July 2025)

In division algorithm the pre-condition is?

Select the correct option

- ○ q and r are nonnegative integers
- ◉ a is a nonnegative integer and d is a positive integer

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Question # 6 of 10 (Start time: 11:37:56 PM, 08 July 2025)

The statement $n^2 > n + 3$ is true when _____ .

Select the correct option

◉	$n \geqslant 3$
○	$n \geqslant 2$
○	$n \geqslant 1$
○	$n \geqslant -1$

Question # 5 of 10 (Start time: 11:37:33 PM, 08 July 2025)

The set of prime numbers is ----------

Select the correct option

- finite set.
- continuous set.
- None of these.
- infinite set.

The correct opt

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Question # 4 of 10 (Start time: 11:37:07 PM, 08 July 2025)

In inductive property the first iteration of the loop is solved for?

Select the correct option

- ○ None
- ◉ I(0)
- ○ I(k + 1)
- ○ I(k)

The correct option is B

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MTH202 - Discrete Mathematics (Quiz 3)

Question # 3 of 10 (Start time: 11:36:36 PM, 08 July 2025)

An integer n is a perfect square if and only if ---------- for some integer k.

Select the correct option

- ○ n = 2k
- ○ n = square-root of k
- ◉ n = k^2
- ○ n = k^3

The correct option is C: n = k^2

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MTH202 - Discrete Mathematics (Quiz 3)

Question # 2 of 10 (Start time: 11:35:49 PM, 08 July 2025)

If 'n' is an odd integer then n^3+n is .....

Select the correct option

- (●) even
- ( ) odd

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MTH202 - Discrete Mathematics (Quiz 3)

Question # 2 of 10 (Start time: 11:35:49 PM, 08 July 2025)

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○	odd

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MTH202 - Discrete Mathematics (Quiz 3)

Question # 1 of 10 (Start time: 11:34:45 PM, 08 July 2025)

For all positive real numbers a and b, if a < b, then ----------

Select the correct option

- ○ a^2 = b^2
- ◉ a^2 < b^2
- ○ a^2 > b^2
- ○ None of these.

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