

ASSALAM O ALAIKUM

All Dearz fellows

ALL IN ONE MTH202 Final term PAPERS &  
MCQz

Created BY Farhan & Ali

BS (cs) 2nd sem

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VRSHC TEAM

**FINALTERM EXAMINATION**

**Spring 2009**

**MTH202- Discrete Mathematics (Session - 2)**

**Time: 120 min**

**Marks: 80**

**Question No: 1 ( Marks: 1 ) - Please choose one**

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The negation of "Today is Friday" is

- ▶ Today is Saturday
- ▶ **Today is not Friday**
- ▶ Today is Thursday

**Question No: 2 ( Marks: 1 ) - Please choose one**

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An arrangement of rows and columns that specifies the truth

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value of a compound proposition for all possible truth values of its constituent propositions is called

- ▶ **Truth Table**
- ▶ Venn diagram
- ▶ False Table
- ▶ None of these

**Question No: 3 ( Marks: 1 ) - Please choose one**

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The converse of the conditional statement  $p \rightarrow q$  is

- ▶  **$q \rightarrow p$**
- ▶  $\sim q \rightarrow \sim p$
- ▶  $\sim p \rightarrow \sim q$
- ▶ None of these

**Question No: 4 ( Marks: 1 ) - Please choose one**

Contrapositive of given statement "If it is raining, I will take an umbrella" is

▶ I will not take an umbrella if it is not raining.

▶ I will take an umbrella if it is raining.

▶ It is not raining or I will take an umbrella.

▶ None of these.

Question No: 5 ( Marks: 1 ) - Please choose one

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Let  $A = \{1, 2, 3, 4\}$  and  $R = \{(1, 1), (2, 2), (3, 3), (4, 4)\}$  then

▶ R is symmetric.

▶ R is anti symmetric.

▶ R is transitive.

▶ R is reflexive.

▶ All given options are true

Question No: 6 ( Marks: 1 ) - Please choose one

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A binary relation R is called Partial order relation if

▶ It is Reflexive and transitive

▶ It is symmetric and transitive

▶ It is reflexive, symmetric and transitive

▶ It is reflexive, antisymmetric and transitive

Question No: 7 ( Marks: 1 ) - Please choose one

How many functions are there from a set with three elements to a set with two elements?

- ▶ 6
- ▶ **8**
- ▶ 12

**Question No: 8 ( Marks: 1 ) - Please choose one**

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$1, 10, 10^2, 10^3, 10^4, 10^5, 10^6, 10^7, \dots$  is

- ▶ **Arithmetic series**
- ▶ Geometric series
- ▶ Arithmetic sequence
- ▶ Geometric sequence

**Question No: 9 ( Marks: 1 ) - Please choose one**

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$[x]$  for  $x = -2.01$  is

- ▶ -2.01
- ▶ -3
- ▶ **-2**
- ▶ -1.99

**Question No: 10 ( Marks: 1 ) - Please choose one**

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If A and B are two disjoint (mutually exclusive) events then

$$P(A \cup B) =$$

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- ▶  $P(A) + P(B) + P(A \cap B)$
- ▶  $P(A) + P(B) + P(A \cup B)$
- ▶  $P(A) + P(B) - P(A \cap B)$
- ▶  $P(A) + P(B) - P(A \cup B)$
- ▶  **$P(A) + P(B)$**

**Question No: 11 ( Marks: 1 ) - Please choose one**

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If a die is thrown then the probability that the dots on the top are prime numbers or odd numbers is

- ▶ 1
- ▶  $\frac{1}{3}$
- ▶  $\frac{2}{3}$

**Question No: 12 ( Marks: 1 ) - Please choose one**

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If  $P(A \cap B) \neq P(A)P(B)$  then the events A and B are called

- ▶ Independent
- ▶ **Dependent** page 270
- ▶ Exhaustive

**Question No: 13 ( Marks: 1 ) - Please choose one**

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A rule that assigns a numerical value to each outcome in a sample space is called

- ▶ One to one function
- ▶ Conditional probability
- ▶ **Random variable**

**Question No: 14 ( Marks: 1 ) - Please choose one**

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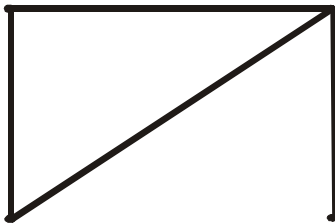
The expectation of  $x$  is equal to

- ▶ Sum of all terms
- ▶ Sum of all terms divided by number of terms
- ▶  $\sum xf(x)$

**Question No: 15 ( Marks: 1 ) - Please choose one**

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The degree sequence  $\{a, b, c, d, e\}$  of the given graph is



- ▶ 2, 2, 3, 1, 1
- ▶ 2, 3, 1, 0, 1
- ▶ 0, 1, 2, 2, 0
- ▶ **2, 3, 1, 2, 0**

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**Question No: 16 ( Marks: 1 ) - Please choose one**

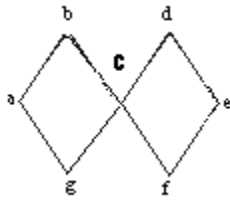
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Which of the following graph is not possible?

- ▶ Graph with four vertices of degrees 1, 2, 3 and 4.
- ▶ **Graph with four vertices of degrees 1, 2, 3 and 5.**
- ▶ Graph with three vertices of degrees 1, 2 and 3.
- ▶ Graph with three vertices of degrees 1, 2 and 5.

**Question No: 17 ( Marks: 1 ) - Please choose one**

The graph given below



- ▶ Has Euler circuit
- ▶ Has Hamiltonian circuit
- ▶ **Does not have Hamiltonian circuit**

**Question No: 18 ( Marks: 1 ) - Please choose one**

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Let  $n$  and  $d$  be integers and  $d \neq 0$ . Then  $n$  is divisible by  $d$  or  $d$  divides  $n$

If and only if

- ▶  **$n = k \cdot d$  for some integer  $k$**
- ▶  $n = d$
- ▶  $n \cdot d = 1$
- ▶ none of these

**Question No: 19 ( Marks: 1 ) - Please choose one**

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The contradiction proof of a statement  $p \rightarrow q$  involves

- ▶ **Considering  $p$  and then try to reach  $q$**
- ▶ Considering  $\sim q$  and then try to reach  $\sim p$

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- ▶ Considering  $p$  and  $\sim q$  and try to reach contradiction
- ▶ None of these

**Question No: 20 ( Marks: 1 ) - Please choose one**

An integer  $n$  is prime if, and only if,  $n > 1$  and for all positive integers  $r$  and  $s$ , if  $n = r \cdot s$ , then

- ▶  **$r = 1$  or  $s = 1$ .**
- ▶  $r = 1$  or  $s = 0$ .
- ▶  $r = 2$  or  $s = 3$ .
- ▶ None of these

**Question No: 21 ( Marks: 1 ) - Please choose one**

The method of loop invariants is used to prove correctness of a loop with respect to certain pre and post-conditions.

- ▶ **True**
- ▶ False
- ▶ None of these

**Question No: 22 ( Marks: 1 ) - Please choose one**

The greatest common divisor of 27 and 72 is



- ▶ 27
- ▶ 9
- ▶ 1
- ▶ None of these

Question No: 23 ( Marks: 1 ) - Please choose one

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If a tree has 8 vertices then it has

- ▶ 6 edges
- ▶ 7 edges
- ▶ 9 edges

Question No: 24 ( Marks: 1 ) - Please choose one

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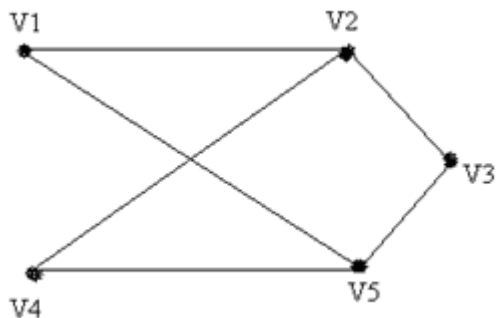
Complete graph is planar if

- ▶  $n = 4$
- ▶  $n > 4$
- ▶  $n \leq 4$

Question No: 25 ( Marks: 1 ) - Please choose one

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The given graph is



▶ **Simple graph**

- ▶ Complete graph
- ▶ Bipartite graph
- ▶ Both (i) and (ii)
- ▶ Both (i) and (iii)

**Question No: 26 ( Marks: 1 ) - Please choose one**

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The value of  $0!$  Is

- ▶ 0
- ▶ **1** pg160
- ▶ Cannot be determined

**Question No: 27 ( Marks: 1 ) - Please choose one**

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Two matrices are said to be conformable for multiplication if

- ▶ Both have same order
- ▶ **Number of columns of 1<sup>st</sup> matrix is equal to number of rows in 2<sup>nd</sup> matrix**
- ▶ Number of rows of 1<sup>st</sup> matrix is equal to number of columns in 2<sup>nd</sup> matrix

**Question No: 28 ( Marks: 1 ) - Please choose one**

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The value of  $(-2)!$  Is

- ▶  0
- ▶  1
- ▶  **Cannot be determined**

**Question No: 29 ( Marks: 1 ) - Please choose one**

The value of  $\frac{(n+1)!}{(n-1)!}$  is

- ▶ 0
- ▶  $n(n-1)$
- ▶  $n^2 + n$
- ▶ Cannot be determined

**Question No: 30 ( Marks: 1 ) - Please choose one**

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The number of  $k$ -combinations that can be chosen from a set of  $n$  elements can be written as

- ▶  ${}^n C_k$  pg223
- ▶  ${}^k C_n$
- ▶  ${}^n P_k$
- ▶  ${}^k P_k$

**Question No: 31 ( Marks: 1 ) - Please choose one**

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If the order does not matter and repetition is allowed then total number of ways for selecting  $k$  sample from  $n$ . is

- ▶  $n^k$
- ▶  $C(n+k-1, k)$  page 228
- ▶  $P(n, k)$
- ▶  $C(n, k)$

**Question No: 32 ( Marks: 1 ) - Please choose one**





















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