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# Page 253

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MTH202- Discrete Mathematics   
Latest Solved MCQS from Final term Papers   
   
13 july,2011   
 Mc100401285 moaaz.pk@gmail.com Moaaz Siddiq   
   
FINALTERM EXAMINATION   
Spring 2010   
MTH202- Discrete Mathematics (Session - 2)   
   
   
Question No: 1 ( Marks: 1 ) - Please choose one   
If p = It is raining   
 q = She will go to college   
"It is raining and she will not go to college" will be denoted by   
   
 ► Correct.   
 ►   
 ►   
 ►   
   
Question No: 2 ( Marks: 1 ) - Please choose one   
In a directed graph of a Irreflexive relation, there should be   
   
 ►Loop on a one point   
 ►No loop at any point (Page 89)   
 ►No point connected   
   
   
Question No: 4 ( 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   
32 8 mn= =   
   
Question No: 5 ( Marks: 1 ) - Please choose one   
If a set contains exactly m distinct elements where m denotes some non negative integer then the set is.   
 ► Finite (Page 40)   
 ► Infinite   
 ► None of these   
   
Question No: 6 ( Marks: 1 ) - Please choose one   
 Let f and g be the functions defined by

# Page 255

f(x)= 2x+3 & g(x)= 3x+2 then composition of f and g is   
   
 ► 6x+6   
 ► 5x+5   
 ► 6x+7   
   
()  
( )3 2   
2 3 2 3   
6 4 3   
6 7 fog f x   
x  
x  
x= +   
= + +   
= + +   
= +   
   
Question No: 7 ( Marks: 1 ) - Please choose one   
 Let f is defined recursively by   
F(0)=3   
F(n+1)=2f(n)+2   
Then f(2)=   
 ► 8   
 ► 10   
 ► 18   
 ► 21   
   
()()()  
( ) ( ) ( )1 2 0 2 2 3 2 6 2 8   
2 2 1 2 2 8 2 16 2 18 f f   
f f = + = + = + =   
= + = + = + =   
   
   
Question No: 9 ( Marks: 1 ) - Please choose one   
If a pair of dice is thrown then the probability of getting a total of 5 or 11 is   
/head2right 1  
18   
/head2right 1  
9   
   
/head2right 1  
6   
   
()()()()  
( ) ( )5 1,4 2,3 , 3, 2 , 4,1   
11 5,6 , 6,5   
5&11 6   
2 6 6 36   
6 1 Probability 36 6 Outcomeswithsumof   
Outcomeswithsumof   
Totaloutcomes for   
Totaloutcome for dice =  
=  
=  
= × =   
= =   
   
Question No: 10 ( Marks: 1 ) - Please choose one   
If a die is rolled then what is the probability that the number is gre ater than 4

# Page 256

/head2right 1  
3   
/head2right 3  
4   
/head2right 1  
2   
   
4 5,6   
2 1 Probability 6 3 Numbergreaterthan =  
= =   
   
Question No: 11 ( Marks: 1 ) - Please choose one   
What is the expectation of the number of heads when three fair coin s are tossed?   
 ► 1   
 ► 1.34   
 ► 2   
 ► 1.5 (Page 277)   
   
   
Question No: 13 ( Marks: 1 ) - Please choose one   
The Hamiltonian circuit for the following graph is   
   
   
►abcdefgh   
►abefgha   
►abcdefgha (Page 297)   
   
Question No: 14 ( Marks: 1 ) - Please choose one   
Let n and d be integers and d ≠ 0. Then n is divisible by d or d divides n   
If and only if   
   
 ► n= k.d for some integer k (Page 179)   
 ► n=d   
 ► n.d=1   
 ► none of these   
   
   
Question No: 16 ( Marks: 1 ) - Please choose one   
The sum of two irrational number must be an irrational number   
   
 ► False (Page 197)   
 ► True   
   
Question No: 17 ( Marks: 1 ) - Please choose one

# Page 257

The square root of every prime number is irrational   
   
 ► True   
 ► False   
 ► Depends on the prime number given   
   
   
Question No: 18 ( Marks: 1 ) - Please choose one   
The greatest common divisor of 27 and 72 is   
   
 ► 27   
 ► 9   
 ► 1   
 ► None of these   
   
Solution:   
1.Divide 72 by 27:   
 This gives 72 = 27 · 2 + 18   
2.Divide 27 by 18:   
 This gives 27 = 18 · 1 + 9   
3.Divide 18 by 9:   
 This gives 18 = 9 · 2 + 0   
Hence greatest common divisor (72, 27) = 9.   
   
   
Question No: 19 ( Marks: 1 ) - Please choose one   
If T is a full binary tree and has 5 internal vertices then the total vert ices of T are   
 ► 11   
 ► 12   
 ► 13   
 ► None of the these   
   
() 2 1 2 5 1 10 1 11 k+ = + = + =   
   
Question No: 20 ( Marks: 1 ) - Please choose one   
Suppose that a connected planar simple graph has 30 edges. If a plane drawing of th is graph has 20 faces,   
how many vertices does the graph have?   
►12 (Page 318)   
►13   
►14   
   
Question No: 21 ( Marks: 1 ) - Please choose one   
How many different ways can three of the letters of the word BYTES be chosen if the first letter must be   
B ?   
   
 ► P(4,2)   
 ► P(2,4)   
 ► C(4,2)   
 ► None of these

# Page 258

Question No: 22 ( Marks: 1 ) - Please choose one   
The value of 0! Is   
   
 ► 0   
 ► 1 (Page 160)   
 ►Cannot be determined   
   
Question No: 23 ( Marks: 1 ) - Please choose one   
An arrangement of objects with the consideration of order is called   
   
 ► Permutation (Page 219)   
 ► Combination   
 ► Selection   
 ► None of these   
   
   
Question No: 25 ( Marks: 1 ) - Please choose one   
Among 200 people, 150 either swim or jog or both. If 85 swim and 60 swim and jog, how many jog?   
   
 ► 125 (Page 241)   
 ► 225   
 ► 85   
 ► 25   
   
Question No: 26 ( Marks: 1 ) - Please choose one   
If a graph is a tree then   
   
 ► it has 2 spanning trees   
 ► it has only 1 spanning tree (Page 329)   
 ► it has 4 spanning trees   
 ► it has 5 spanning trees   
   
Question No: 27 ( Marks: 1 ) - Please choose one   
Euler formula for graphs is   
   
 ► f = e-v   
 ► f = e+v +2   
 ► f = e-v-2   
 ► f = e-v+2 (Page 317)   
   
Question No: 28 ( Marks: 1 ) - Please choose one   
The given graph is

# Page 259

►Simple graph   
 ►Complete graph   
 ►Bipartite graph   
 ►Both (i) and (ii)   
 ►Both (i) and (iii)   
   
Question No: 29 ( Marks: 1 ) - Please choose one   
An integer n is odd if and only if n = 2k + 1 for some integer k.   
   
 ► True (Page 187)   
 ► False   
 ► Depends on the value of k   
   
   
Question No: 30 ( Marks: 1 ) - Please choose one   
If ( ) ( ) ( ) P A B P A P B ∩ = then the events A and B are called   
   
 ► Independent (Page 272)   
 ► Dependent   
 ► Exhaustive   
   
   
FINALTERM EXAMINATION   
Spring 2010   
MTH202- Discrete Mathematics (Session - 1)   
   
Question No: 1 ( Marks: 1 ) - Please choose one   
Whether the relation R on the set of all integers is reflexive, symm etric, antisymmetric, or transitive,   
where ( , ) x y R ∈  
 if and only if 1xy ≥  
   
   
/head2right Anti symmetric   
/head2right Transitive   
/head2right Symmetric   
/head2right Both Symmetric and transitive   
http://www.maths.uq.edu.au/courses/MATH1061/wkbooksols/chap10/S10\_5 \_3solution.htm

# Page 260

Question No: 2 ( Marks: 1 ) - Please choose one   
For a binary relation R defined on a set A , if for all ,( , ) t A t t R ∈ ∉   
 then R is   
/head2right Anti symmetric   
/head2right Symmetric   
/head2right Irreflexive (Page 77)   
   
Question No: 3 ( Marks: 1 ) - Please choose one   
If ( A B ∪) = A, then ( A B ∩) = B   
/head2right True   
/head2right False   
/head2right Cannot be determined   
   
   
Question No: 4 ( Marks: 1 ) - Please choose one   
Let   
 0 1 2   
2  
01, 2 3   
j  
ja a and a   
then a   
== =− =   
=∑  
   
/head2right -6   
/head2right 2   
/head2right 8   
() 1 2 3 2 + − + =   
   
Question No: 5 ( Marks: 1 ) - Please choose one   
The part of definition which can be expressed in terms of smaller versions of itself is called   
   
Base   
Restriction   
Recursion (page 159)   
Conclusion   
   
Question No: 6 ( Marks: 1 ) - Please choose one   
What is the smallest integer N such that 96N  =      
   
/head2right 46   
/head2right 29   
/head2right 49   
() 6 9 1 1   
6 8 1 49 N= × − +   
= × + =   
   
Question No: 7 ( Marks: 1 ) - Please choose one   
In probability distribution random variable f satisfies the conditions

# Page 261

/head2right 1( ) 0 ( ) 1 n  
i i   
if x and f x   
=≤ ≠ ∑  
   
/head2right   
1( ) 0 ( ) 1 n  
i i   
if x and f x   
=≥ = ∑ (Page 275)   
/head2right 1( ) 0 ( ) 1 n  
i i   
if x and f x   
=≥ ≠ ∑  
   
/head2right 1( ) 0 ( ) 1 n  
i i   
if x and f x   
==∑ p  
   
   
Question No: 8 ( Marks: 1 ) - Please choose one   
What is the probability that a hand of five cards contains four cards of one k ind?   
/head2right 0.0018   
/head2right 1  
2   
/head2right 0.0024 (page 253)   
   
Question No: 9 ( Marks: 1 ) - Please choose one   
A rule that assigns a numerical value to each outcome in a sample space is call ed   
   
/head2right One to one function   
/head2right Conditional probability   
/head2right Random variable (Page 274)   
   
Question No: 10 ( Marks: 1 ) - Please choose one   
A walk that starts and ends at the same vertex is called   
/head2right Simple walk   
/head2right Circuit   
/head2right Closed walk (Page 292)   
   
Question No: 11 ( Marks: 1 ) - Please choose one   
The Hamiltonian circuit for the following graph is   
   
   
/head2right abcdefgh   
/head2right abefgha   
/head2right abcdefgha (Page 297)   
   
Question No: 14 ( Marks: 1 ) - Please choose one   
The square root of every prime number is irrational   
   
/head2right True   
/head2right False   
/head2right Depends on the prime number given

# Page 262

Question No: 15 ( Marks: 1 ) - Please choose one   
If a and b are any positive integers with b≠0 and q and r are non negative in tegers such that a= b.q+r   
then   
   
/head2right gcd(a,b)=gcd(b,r) (Page 207)   
/head2right gcd(a,r)=gcd(b,r)   
/head2right gcd(a,q)=gcd(q,r)   
   
   
Question No: 16 ( Marks: 1 ) - Please choose one   
The greatest common divisor of 27 and 72 is   
   
/head2right 27   
/head2right 9   
/head2right 1   
/head2right None of these   
   
Solution:   
1.Divide 72 by 27:   
 This gives 72 = 27 · 2 + 18   
2.Divide 27 by 18:   
 This gives 27 = 18 · 1 + 9   
3.Divide 18 by 9:   
 This gives 18 = 9 · 2 + 0   
Hence greatest common divisor (72, 27) = 9.   
   
Question No: 17 ( Marks: 1 ) - Please choose one   
In how many ways can a set of five letters be selected from the English Al phabets?   
   
/head2right C(26,5)   
/head2right C(5,26)   
/head2right C(12,3)   
/head2right None of these   
   
Question No: 18 ( Marks: 1 ) - Please choose one   
A vertex of degree greater than 1 in a tree is called a   
/head2right Branch vertex (Page 323)   
/head2right Terminal vertex   
/head2right Ancestor   
   
Question No: 19 ( Marks: 1 ) - Please choose one   
For the given pair of graphs whether it is

# Page 263

/head2right Isomorphic   
/head2right Not isomorphic   
   
Question No: 20 ( Marks: 1 ) - Please choose one   
The value of (-2)! Is   
   
/head2right 0   
/head2right 1   
/head2right Cannot be determined (Page 217)   
   
Question No: 21 ( Marks: 1 ) - Please choose one   
In the following graph   
   
   
How many simple paths are there from 1v  
 to 4v  
   
/head2right 2   
/head2right 3   
/head2right 4   
   
Question No: 22 ( Marks: 1 ) - Please choose one

# Page 264

The value of ( )( 1)!   
1 ! n  
n+  
−  
 is   
   
/head2right 0   
/head2right n(n-1)   
/head2right 2n n +   
/head2right Cannot be determined   
   
( )()() 1 . . 1 ! ( 1)!   
1 ! n n n n  
n+ − +=−( )1 ! n−( )21 . n n n n = + = +   
   
   
Question No: 24 ( Marks: 1 ) - Please choose one   
Any two spanning trees for a graph   
   
/head2right Does not contain same number of edges   
/head2right Have the same degree of corresponding edges   
/head2right contain same number of edges (Page 329)   
/head2right May or may not contain same number of edges   
   
Question No: 25 ( Marks: 1 ) - Please choose one   
When 3 k is even, then 3 k+3 k+3 k is an odd.   
/head2right True   
/head2right False   
   
Question No: 26 ( Marks: 1 ) - Please choose one   
Quotient –Remainder Theorem states that for any positive integer d, there exist unique integer q and r   
such that n=d.q+ r and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.   
/head2right 0≤r<d (Page 201)   
/head2right 0<r<d   
/head2right 0≤d<r   
/head2right None of these   
   
Question No: 27 ( Marks: 1 ) - Please choose one   
The value of x    for x = -3.01 is   
   
/head2right -3.01   
/head2right -3   
/head2right -2   
/head2right -1.99   
   
3.01 4 0.99 4   
3.01 4 0.99 4 1 3 − = − + =−           
− = − + =− + =−        

# Page 265

Question No: 29 ( 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·s, then   
   
/head2right r = 1 or s = 2.   
/head2right r = 1 or s = 0.   
/head2right r = 2 or s = 3.   
/head2right None of these (Page 187)   
   
   
Question No: 30 ( Marks: 1 ) - Please choose one   
If ( ) ( ) ( ) P A B P A P B ∩ = then the events A and B are called   
   
/head2right Independent (Page 272)   
/head2right Dependent   
/head2right Exhaustive   
   
FINALTERM EXAMINATION   
Fall 2009   
MTH202- Discrete Mathematics   
   
   
   
If A and B are two disjoint (mutually exclusive)   
events then, P(A B) =   
/head2right P(A) + P(B) + P(A B)   
/head2right P(A) + P(B) + P(AUB)   
/head2right P(A) + P(B) - P(A B)   
/head2right P(A) + P(B) - P(A B)   
/head2right P(A) + P(B) (Page 240)   
   
   
If p=It is red,   
 q=It is hot   
 Then, It is not red but hot is denoted by ~ ~ p q ∧   
/head2right True   
/head2right False   
   
If ( A B ∪) = A, then ( A B ∩) = B   
   
/head2right True   
/head2right False   
/head2right Cannot be determined   
   
How many integers from 1 through 1000 are neither multiple of 3 nor multiple o f 5?   
/head2right 333   
/head2right 467   
/head2right 533 (Page 245)

# Page 266

/head2right 497   
The value of x      
 for -2.01 is   
/head2right -3   
/head2right 1   
/head2right -2 (Page 249)   
   
If p = Nadia is hard working ,   
q = Nadia is good in mathematics   
"Nadia is hard working and good in mathematics" is denoted by   
/head2right Correct.   
/head2right   
/head2right   
/head2right   
   
A die is thrown twice. What is the probability that the sum of the numb er of dots shown is 3 or 11?   
   
/head2right 2  
3   
/head2right 1  
9Correct.   
/head2right 1  
2   
   
()()  
( ) ( )5 1, 2 2,1   
11 5,6 , 6,5   
5&11 4   
2 6 6 36   
4 1 Probability 36 9 Outcomeswithsumof   
Outcomeswithsumof   
Totaloutcomes for   
Totaloutcome for dice =  
=  
=  
= × =   
= =   
If A and B are independent events then ( ) P A B =  
   
/head2right P (B)   
/head2right P (A) (Page 272)   
/head2right ( ) P A B ∩   
   
What is the expectation of the number of heads when three fair coins are tossed ?   
/head2right 1   
/head2right 1.34   
/head2right 2   
/head2right 1.5 (Page 277)   
   
Every relation is   
   
/head2right function

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/head2right may or may not function   
/head2right bijective mapping   
/head2right Cartesian product set   
   
The statement p q = (p q) ∧(q p) describes   
   
/head2right Commutative Law   
/head2right Implication Laws   
/head2right Exportation Law   
/head2right Equivalence   
   
Given 3 2 ( ) 2 4 1 (1 ) f x x x x thenthevalueof f x is = − + − −   
   
   
/head2right 3 2 1 2 4 1x x x − + −   
   
/head2right 3 2 3 2 x x x − + − +   
/head2right Zero   
/head2right 2 3 2x x + −   
   
( ) ( ) ( ) ( )  
( )3 2   
3 2 2 1 1 2 1 4 1 1   
1 3 3 2 1 2 4 4 1   
1f x x x x   
x x x x x x − = − − − + − −   
= − + − − + − + − −   
=3 2 2 3 3 2 2 4 x x x x x − + − − − + 4 4 x+ − 1−  
3 2 2   
3 2 3 2 3 2 4   
3 2 x x x x   
x x x =− + − − − +   
=− + − +   
   
The square root of every prime number is irrational   
/head2right True   
/head2right False   
/head2right Depends on the prime number given   
   
A predicate is a sentence that contains a finite number of variables and b ecomes a statement when specific   
values are substituted for the variables   
   
/head2right True (Page 202)   
/head2right False   
/head2right None of these   
   
If r is a positive integer then gcd(r,0)=   
   
/head2right r   
/head2right 0   
/head2right 1   
/head2right None of these   
   
Associative law of union for three sets is

# Page 268

/head2right A (B C) = (A B) C   
/head2right A (B C) = (A B) C   
/head2right A (B C) = (A B) (A B)   
None of these   
   
Values of X and Y, if the following order pairs are equal.   
(4X-1, 4Y+5)= (3,5)   
will be   
 ► (x,y) = (3,5)   
 ► (x,y) = (1.5,2.5)   
 ► (x,y) = (1,0)   
 ► None of these   
   
4 1 3 4 5 5   
4 3 1 4 5 5   
4 4 4 0   
4 0 1 0 4 4 X Y   
X Y   
X Y   
X Y − = + =   
= + = −   
= =   
= = = =   
   
The expectation of x is equal to   
/head2right Sum of all terms   
/head2right Sum of all terms divided by number of terms   
   
/head2right ( ) xf x ∑ (Page 277)   
   
A line segment joining pair of vertices is called   
   
/head2right Loop   
/head2right Edge (Page 283)   
/head2right Node   
The indirect proof of a statement p q involves   
/head2right Considering ~q and then try to reach ~p   
/head2right Considering p and ~q and try to reach contradiction   
/head2right Both 2 and 3 above (Not sure)   
/head2right Considering p and then try to reach q   
   
The greatest common divisor of 5 and 10 is   
   
/head2right 5   
/head2right 0   
/head2right 1   
/head2right None of these   
   
Suppose that there are eight runners in a race first will get gold med al the second will get siver and third   
will get bronze. How many different ways are there to award these medals if all possible outcomes of race   
can occur and there is no tie?

# Page 269

/head2right P(8,3)   
/head2right P(100,97)   
/head2right P(97,3)   
/head2right None of these   
   
The value of 0! Is   
   
/head2right 0   
/head2right 1 (Page 160)   
/head2right Cannot be determined   
   
Which of the following graphs are tree?   
   
   
   
   
   
/head2right a, b, c   
/head2right b, c, d   
/head2right c, d, e   
/head2right a , c, e   
   
A sub graph of a graph G that contains every vertex of G and is a tree is called   
/head2right Trivial tree   
/head2right empty tree   
/head2right Spanning tree (Page 329)   
   
 In the planar graph, the graph crossing number is   
/head2right 0 (Page 314)   
/head2right 1   
/head2right 2   
/head2right 3   
   
A matrix in which number of rows and columns are equal is called   
   
/head2right Rectangular Matrix   
/head2right Square Matrix (Page 289)   
/head2right Scalar Matrix   
   
Changing rows of matrix into columns is called   
   
/head2right Symmetric Matrix   
/head2right Transpose of Matrix (Page 299)   
/head2right Adjoint of Matrix   
   
If A and B are finite (overlapping) sets, then which of the followin g must be true

# Page 270

/head2right n(A B) = n(A) + n(B)   
/head2right n(A B) = n(A) + n(B) - n(A B) (Page 240)   
/head2right n(A B)= ø   
/head2right None of these   
   
When 3 k is even, then 3 k+3 k+3 k is an odd.   
   
/head2right True   
/head2right False   
   
When 5 k is even, then 5 k+5 k+5 k is odd.   
   
/head2right True   
/head2right False   
   
5n -1 is divisible by 4 for all positive integer values of n.   
   
/head2right True   
/head2right False   
   
If r is a positive integer then gcd(r, 5) =   
/head2right r   
/head2right 5   
/head2right 0   
/head2right None of these   
   
   
The product of the positive integers from 1 to n is called   
   
/head2right Multiplication   
/head2right n factorial (Page 217)   
/head2right Geometric sequence   
   
   
The expectation for the following table is   
   
xi 1 3   
f(x i) 0.4 0.1   
   
/head2right 0.5   
/head2right 3.4   
/head2right 0.3   
/head2right 0.7

# Page 271

()()() 1 0.4 3 0.1   
0.4 0.3   
0.7 xf x = × + ×   
= +   
=∑  
   
   
If p= A Pentium 4 computer,   
 q= attached with ups.   
 Then "no Pentium 4 computer is attached with ups" is denoted by   
/head2right ~ (p ∧q)   
/head2right ~ p ∨q   
/head2right ~ p ∧q   
/head2right None of these   
   
   
The given graph is   
   
   
/head2right Simple graph   
/head2right Complete graph   
/head2right Bipartite graph   
/head2right Both (i) and (ii)   
/head2right Both (i) and (iii)   
   
   
( ) P n   
is called proposition or statement.   
   
/head2right True (Page 170)   
/head2right False   
An integer n is odd if and only if n = 2k + 1 for some integer k.   
/head2right True (Page 187)   
/head2right False   
/head2right Depends on the value of k   
An integer n is called a perfect square if and only if n = k 2 for some integer k.   
/head2right True (Page 187)   
/head2right False   
/head2right Depends on the value of k

# Page 272

FINALTERM EXAMINATION   
Fall 2009   
MTH202- Discrete Mathematics   
   
Question No: 1 ( Marks: 1 ) - Please choose one   
   
Let A = {a, b, c} and   
R = {(a, c), (b, b), (c, a)} be a relation on A. Is R   
 ► Transitive   
 ► Reflexive   
 ► Symmetric   
 ► Transitive and Reflexive   
   
Question No: 2 ( Marks: 1 ) - Please choose one   
   
Symmetric and antisymmetric are   
 ► Negative of each other   
 ► Both are same   
 ► Not negative of each other (Page 90)   
   
Question No: 3 ( Marks: 1 ) - Please choose one   
The statement p □ q □ q □ p describes   
 ► Commutative Law:   
 ► Implication Laws:   
 ► Exportation Law:   
 ► Equivalence:   
   
Question No: 4 ( Marks: 1 ) - Please choose one   
The relation as a set of ordered pairs as shown in figure is   
   
   
 ► {(a,b),(b,a),(b,d),(c,d)}   
 ► {(a,b),(b,a),(a,c),(b,a),(c,c),(c,d)}   
 ► {(a,b), (a,c), (b,a),(b,d), (c,c),(c,d)}   
 ► {(a,b), (a,c), (b,a),(b,d),(c,d)}   
   
   
Question No: 5 ( Marks: 1 ) - Please choose one   
The statement p □q □ (p □ ~q) □c describes

# Page 273

► Commutative Law:   
 ► Implication Laws:   
 ► Exportation Law:   
► Reductio ad absurdum   
   
Question No: 6 ( Marks: 1 ) - Please choose one   
A circuit with one input and one output signal is called.   
 ► NOT-gate (or inverter) (Page 31)   
 ► OR- gate   
 ► AND- gate   
 ► None of these   
   
Question No: 7 ( Marks: 1 ) - Please choose one   
If f(x)=2x+1, 2g(x)=x -1   
 then fg(x)=   
   
 ► 2x -1   
 ► 22x -1   
 ► 32x -1   
   
()()  
( ) ( )2  
2 2   
2  
21  
1 2 1 1   
2 2 1   
2 2 fg x f x   
f x x   
x  
x= −   
− = − +   
= − +   
= −   
   
Question No: 8 ( Marks: 1 ) - Please choose one   
Let g be the functions defined by   
g(x)= 3x+2 then gog(x) =   
   
 ► 29 4 x+   
 ► 6x+4   
 ► 9x+8   
   
()()  
( ) ( )3 2   
3 2 3 3 2 2   
9 6 2   
9 8 gg x g x   
g x x   
x  
x= +   
+ = + +   
= + +   
= +   
   
Question No: 9 ( Marks: 1 ) - Please choose one   
How many integers from 1 through 1000 are neither multiple of 3 nor multiple o f 5?   
 ► 333   
 ► 467

# Page 274

► 533 (Page 245)   
 ► 497   
   
Question No: 10 ( Marks: 1 ) - Please choose one   
   
What is the smallest integer N such that 96N  =      
   
   
 ► 46   
 ► 29   
 ► 49   
   
() 6 9 1 1   
6 8 1 49 N= × − +   
= × + =   
   
Question No: 11 ( Marks: 1 ) - Please choose one   
What is the probability of getting a number greater than 4 when a die is t hrown?   
   
/head2right 1  
2   
/head2right 3  
2   
/head2right 1  
3   
   
4 5,6   
2 1 Probability 6 3 Numbergreaterthan =  
= =   
   
   
Question No: 12 ( Marks: 1 ) - Please choose one   
If A and B are two disjoint (mutually exclusive)   
events then P(A□B) =   
 ► P(A) + P(B) + P(A□B)   
 ► P(A) + P(B) + P(AUB)   
 ► P(A) + P(B) - P(A□B)   
 ► P(A) + P(B) - P(A□B)   
 ► P(A) + P(B) Page (240)   
   
Question No: 13 ( Marks: 1 ) - Please choose one   
If a die is thrown then the probability that the dots on the top are prime numbers or odd numbers is   
/head2right 1   
/head2right 1  
2

# Page 275

/head2right 2  
3   
Prime number or odd number =1,3,5   
Total outcomes =6   
Probability = 3/6=1/2   
   
Question No: 14 ( Marks: 1 ) - Please choose one   
The probability of getting 2 heads in two successive tosses of a balanced coin is   
   
/head2right 1  
4   
/head2right 1  
2   
/head2right 2  
3   
   
   
   
Question No: 15 ( Marks: 1 ) - Please choose one   
The probability of getting a 5 when a die is thrown?   
/head2right 1  
6   
/head2right 5  
6   
/head2right 1  
3   
   
   
   
Question No: 16 ( Marks: 1 ) - Please choose one:   
If a coin is tossed then what is the probability that the number is 5   
/head2right 1  
2   
/head2right 0   
/head2right 1   
Wrong Question   
   
Question No: 17 ( Marks: 1 ) - Please choose one   
If A and B are two sets then The set of all elements that belong to both A and B , is   
 ► A □ B   
 ► A □ B (Page 42)   
 ► A--B   
 ► None of these   
   
Question No: 18 ( Marks: 1 ) - Please choose one   
What is the expectation of the number of heads when three fair coins are tossed ?   
 ► 1

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► 1.34   
 ► 2   
 ► 1.5 (Page 277)   
   
Question No: 19 ( Marks: 1 ) - Please choose one   
If A, B and C are any three events, then   
P(A□B□C) is equal to   
   
 ► P(A) + P(B) + P(C)   
 ► P(A) + P(B) + P(C)- P(A□B) - P (A □C) - P(B □C) + P(A □B □ C) (Page 264)   
 ► P(A) + P(B) + P(C) - P(A□B) - P (A □C) - P(B □C)   
 ► P(A) + P(B) + P(C) + P(A □B □C)   
   
Question No: 20 ( Marks: 1 ) - Please choose one   
A rule that assigns a numerical value to each outcome in a sample space is called   
 ► One to one function   
 ► Conditional probability   
 ► Random variable (Page 274)   
   
Question No: 21 ( Marks: 1 ) - Please choose one   
The power set of a set A is the set of all subsets of A, denoted P(A).   
 ► False   
 ► True (Page 68)   
   
Question No: 22 ( Marks: 1 ) - Please choose one   
A walk that starts and ends at the same vertex is called   
   
 ► Simple walk   
 ► Circuit   
 ► Closed walk (Page 292)   
   
Question No: 23 ( Marks: 1 ) - Please choose one   
If a graph has any vertex of degree 3 then   
 ► It must have Euler circuit   
 ► It must have Hamiltonian circuit   
 ► It does not have Euler circuit   
   
Question No: 24 ( Marks: 1 ) - Please choose one   
The square root of every prime number is irrational   
   
 ► True   
 ► False   
 ► Depends on the prime number given   
   
Question No: 25 ( Marks: 1 ) - Please choose one   
A predicate is a sentence that contains a finite number of variables a nd becomes a statement when specific   
values are substituted for the variables   
   
 ► True (Page 202)   
 ► False

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► None of these   
   
Question No: 26 ( Marks: 1 ) - Please choose one   
If r is a positive integer then gcd(r,0)=   
   
 ► r   
 ► 0   
 ► 1   
 ► None of these   
   
Question No: 27 ( Marks: 1 ) - Please choose one   
Combinatorics is the mathematics of counting and arranging objects   
   
 ► True (Page 209)   
 ► False   
► Cannot be determined   
   
Question No: 28 ( Marks: 1 ) - Please choose one   
A circuit that consist of a single vertex is called   
 ► Trivial (Page 322)   
 ► Tree   
 ► Empty   
   
   
Question No: 29 ( Marks: 1 ) - Please choose one   
In the planar graph, the graph crossing number is   
 ► 0 (Page 314)   
 ► 1   
 ► 2   
 ► 3   
   
Question No: 30 ( Marks: 1 ) - Please choose one   
How many ways are there to select five players from a 10 member tenn is team to make a trip to a match to   
another school?   
   
 ► C(10,5)   
 ► C(5,10)   
 ► P(10,5)   
 ► None of these   
   
   
   
Question No: 31 ( Marks: 1 ) - Please choose one   
The value of 0! Is   
   
 ► 0   
 ► 1

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► Cannot be determined   
   
Question No: 32 ( Marks: 1 ) - Please choose one   
If the transpose of any square matrix and that matrix are same then matri x is called   
   
 ► Additive Inverse   
 ► Hermition Matrix   
 ► Symmetric Matrix (Page 299)   
   
Question No: 33 ( Marks: 1 ) - Please choose one   
The value of ( )( 1)!   
1 ! n  
n−  
+  
 is   
   
   
 ► 0   
 ► n(n-1)   
   
 ►( )21  
n n + (Page 217)   
 ► Cannot be determined   
   
   
Question No: 34 ( Marks: 1 ) - Please choose one   
If A and B are two disjoint sets then which of the following must be true   
   
 ► n(A□B) = n(A) + n(B) (Page 257)   
 ► n(A□B) = n(A) + n(B) - n(A□B)   
 ► n(A□B)= ø   
 ► None of these   
   
Question No: 35 ( Marks: 1 ) - Please choose one   
Any two spanning trees for a graph   
   
 ► Does not contain same number of edges   
 ► Have the same degree of corresponding edges   
 ► contain same number of edges (Page 329)   
 ► May or may not contain same number of edges   
   
Question No: 36 ( Marks: 1 ) - Please choose one   
When P(k) and P(k+1) are true for any positive integer k, then P(n) is not t rue for all +ve Integers .   
   
 ► True   
 ► False (Lecture 23)   
   
Question No: 37 ( Marks: 1 ) - Please choose one   
n2 > n+3 for all integers n □3.   
   
 ► True

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► False   
   
Question No: 38 ( Marks: 1 ) - Please choose one   
Quotient –Remainder Theorem states that for any positive integer d, ther e exist unique integer q and r   
such that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and 0≤r<d.   
   
 ► n=d.q+ r (Page 201)   
 ► n=d.r+ q   
 ► n=q.r+ d   
 ► None of these   
   
Question No: 39 ( Marks: 1 ) - Please choose one   
Euler formula for graphs is   
   
 ► f = e-v   
 ► f = e+v +2   
 ► f = e-v-2   
 ► f = e-v+2 (Page 317)   
   
Question No: 40 ( Marks: 1 ) - Please choose one   
The degrees of {a, b, c, d, e} in the given graph is   
a b  
cde  
   
   
 ► 2, 2, 3, 1, 1   
 ► 2, 3, 1, 0, 1   
 ► 0, 1, 2, 2, 0   
 ► 2,3,1,2,0 Correct answer on Paper 307   
   
   
FINALTERM EXAMINATION   
Spring 2009   
MTH202- Discrete Mathematics (Session - 2)   
   
Question No: 1 ( Marks: 1 ) - Please choose one   
The negation of “Today is Friday” is   
/head2right Today is Saturday   
/head2right Today is not Friday   
/head2right Today is Thursday   
   
Question No: 2 ( Marks: 1 ) - Please choose one   
An arrangement of rows and columns that specifies the truth value of a compound proposition for all

# Page 280

possible truth values of its constituent propositions is called   
/head2right Truth Table (Page 6)   
/head2right Venn diagram   
/head2right False Table   
/head2right None of these   
   
Question No: 4 ( Marks: 1 ) - Please choose one   
Contra positive of given statement “ If it is raining, I will take an umbrella” is   
/head2right I will not take an umbrella if it is not raining.   
/head2right I will take an umbrella if it is raining.   
/head2right It is not raining or I will take an umbrella.   
/head2right None of these.   
Question No: 5 ( Marks: 1 ) - Please choose one   
Let A= {1, 2, 3, 4} and R = {(1, 1), (2, 2), (3, 3),(4,4)} then   
/head2right ► R is symmetric.   
/head2right ► R is anti symmetric.   
/head2right ► R is transitive.   
/head2right ► R is reflexive.   
/head2right ► All given options are true   
   
Question No: 6 ( Marks: 1 ) - Please choose one   
A binary relation R is called Partial order relation if   
/head2right It is Reflexive and transitive   
/head2right It is symmetric and transitive   
/head2right It is reflexive, symmetric and transitive   
/head2right It is reflexive, anti symmetric 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 t wo elements?   
   
/head2right 6   
/head2right 8   
/head2right 12   
 32 8 mn= =   
   
Question No: 8 ( Marks: 1 ) - Please choose one   
2 3 4 5 6 7 1,10,10 ,10 ,10 ,10 ,10 ,10 ,................   
 is   
   
/head2right Arithmetic series   
/head2right Geometric series   
/head2right Arithmetic sequence   
/head2right Geometric sequence   
   
   
Question No: 9 ( Marks: 1 ) - Please choose one   
x      
 for x = -2.01 is

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/head2right -2.01   
/head2right -3   
/head2right -2 (Page 249)   
/head2right -1.99   
   
Question No: 10 ( Marks: 1 ) - Please choose one   
If A and B are two disjoint (mutually exclusive)   
events then P(AÈB) =   
/head2right P(A) + P(B) + P(AÇB)   
/head2right P(A) + P(B) + P(AUB)   
/head2right P(A) + P(B) - P(AÇB)   
/head2right P(A) + P(B) - P(AÇB)   
/head2right P(A) + P(B)   
   
Question No: 11 ( Marks: 1 ) - Please choose one   
 If a die is thrown then the probability that the dots on the top are prime numbers or odd numbers is   
   
/head2right 1   
/head2right 1  
2   
/head2right 2  
3   
   
Question No: 12 ( Marks: 1 ) - Please choose one   
If ( ) ( ) ( ) P A B P A P B ∩ = then the events A and B are called   
   
/head2right Independent (Page 272)   
/head2right Dependent   
/head2right Exhaustive   
   
Question No: 13 ( Marks: 1 ) - Please choose one   
A rule that assigns a numerical value to each outcome in a sample space is called   
/head2right One to one function   
/head2right Conditional probability   
/head2right Random variable (Page 274)   
   
Question No: 14 ( Marks: 1 ) - Please choose one   
The expectation of x is equal to   
   
/head2right Sum of all terms   
/head2right Sum of all terms divided by number of terms   
/head2right ( ) xf x ∑ (Page 277)   
   
Question No: 15 ( Marks: 1 ) - Please choose one   
The degree sequence {a, b, c, d, e} of the given graph is

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a b  
cde  
   
/head2right 2, 2, 3, 1, 1   
/head2right 2, 3, 1, 0, 1 (Page 307)   
/head2right 0, 1, 2, 2, 0   
/head2right 2,3,1,2,0   
   
Question No: 16 ( Marks: 1 ) - Please choose one   
Which of the following graph is not possible?   
/head2right Graph with four vertices of degrees 1, 2, 3 and 4. (Page 287)   
/head2right Graph with four vertices of degrees 1, 2, 3 and 5.   
/head2right Graph with three vertices of degrees 1, 2 and 3.   
/head2right Graph with three vertices of degrees 1, 2 and 5.   
   
Question No: 17 ( Marks: 1 ) - Please choose one   
The graph given below   
   
/head2right Has Euler circuit   
/head2right Has Hamiltonian circuit   
/head2right Does not have Hamiltonian circuit (Page 297)   
   
Question No: 18 ( Marks: 1 ) - Please choose one   
Let n and d be integers and d ¹ 0. Then n is divisible by d or d divides n   
If and only if   
   
 ► n= k.d for some integer k (Page 179)   
 ► n=d   
 ► n.d=1   
 ► 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·s, then   
   
/head2right r = 1 or s = 1. (Page 187)   
/head2right r = 1 or s = 0.   
/head2right r = 2 or s = 3.

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/head2right 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 respe ct to certain pre and post-  
conditions.   
   
/head2right True (Page 203)   
/head2right False   
/head2right None of these   
   
Question No: 22 ( Marks: 1 ) - Please choose one   
The greatest common divisor of 27 and 72 is   
   
/head2right 27   
/head2right 9   
/head2right 1   
/head2right None of these   
   
Solution:   
1.Divide 72 by 27:   
 This gives 72 = 27 · 2 + 18   
2.Divide 27 by 18:   
 This gives 27 = 18 · 1 + 9   
3.Divide 18 by 9:   
 This gives 18 = 9 · 2 + 0   
Hence greatest common divisor (72, 27) = 9.   
   
Question No: 23 ( Marks: 1 ) - Please choose one   
If a tree has 8 vertices then it has   
   
/head2right 6 edges   
/head2right 7 edges   
/head2right 9 edges   
   
Question No: 24 ( Marks: 1 ) - Please choose one   
Complete graph is planar if   
/head2right n = 4   
/head2right n>4   
/head2right 4n≤(Page 315)   
   
Question No: 25 ( Marks: 1 ) - Please choose one   
The given graph is

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/head2right Simple graph   
/head2right Complete graph   
/head2right Bipartite graph   
/head2right Both (i) and (ii)   
/head2right Both (i) and (iii)   
   
Question No: 26 ( Marks: 1 ) - Please choose one   
The value of 0! Is   
   
 ► 0   
 ► 1 (Page 160)   
 ► Cannot be determined   
   
Question No: 27 ( Marks: 1 ) - Please choose one   
Two matrices are said to confirmable for multiplication if   
   
/head2right Both have same order   
/head2right Number of columns of 1 st matrix is equal to number of rows in 2 nd matrix (Page 300)   
/head2right Number of rows of 1 st matrix is equal to number of columns in 2 nd matrix   
   
Question No: 28 ( Marks: 1 ) - Please choose one   
The value of (-2)! Is   
   
/head2right 0   
/head2right 1   
/head2right Cannot be determined (Page 217)   
   
Question No: 29 ( Marks: 1 ) - Please choose one   
The value of ( )( 1)!   
1 ! n  
n+  
−  
 is   
   
/head2right 0   
/head2right n(n-1)   
/head2right 2n n +   
/head2right Cannot be determined

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( )()() 1 . . 1 ! ( 1)!   
1 ! n n n n  
n+ − +=−( )1 ! n−( )21 . n n n n = + = +   
Question No: 30 ( Marks: 1 ) - Please choose one   
The number of k-combinations that can be chosen from a set of n elements can be written as   
   
/head2right nCk (Page 225)   
/head2right kCn   
/head2right nPk   
/head2right kPk   
   
   
Question No: 31 ( Marks: 1 ) - Please choose one   
If the order does not matter and repetition is allowed then total num ber of ways for selecting k sample   
from n. is   
   
/head2right nk   
/head2right C(n+k-1,k) (Page 229)   
/head2right P(n,k)   
/head2right C(n,k)   
   
   
Question No: 32 ( Marks: 1 ) - Please choose one   
If the order matters and repetition is not allowed then total number of ways for selecting k sample from n.   
is   
   
/head2right nk   
/head2right C(n+k-1,k)   
/head2right P(n,k)   
/head2right C(n,k) (Page 225)   
   
   
Question No: 33 ( Marks: 1 ) - Please choose one   
To find the number of unordered partitions, we have to count the ordered partitions and then divide it by   
suitable number to erase the order in partitions   
   
/head2right True (Page 233)   
/head2right False   
/head2right None of these   
   
   
Question No: 34 ( Marks: 1 ) - Please choose one   
A tree diagram is a useful tool to list all the logical possibilities of a se quence of events where each event   
can occur in a finite number of ways.   
   
/head2right True (Page 237)   
/head2right False   
   
Question No: 36 ( Marks: 1 ) - Please choose one   
What is the output state of an OR gate if the inputs are 0 and 1?

# Page 286

/head2right 0   
/head2right 1   
/head2right 2   
/head2right 3   
   
Question No: 38 ( Marks: 1 ) - Please choose one   
Let A,B,C be the subsets of a universal set U.   
Then ( ) A B C ∪ ∪   
 is equal to:   
   
/head2right ( ) A B C ∩ ∪   
/head2right ( ) A B C ∪ ∩   
/head2right ∅   
/head2right ( ) A B C ∪ ∪ (Page 54)   
   
Question No: 39 ( Marks: 1 ) - Please choose one   
 n! >2 n for all integers n ³4.   
   
/head2right True   
/head2right False   
   
Question No: 40 ( Marks: 1 ) - Please choose one   
, , , + −× ÷   
 are   
   
/head2right Geometric expressions   
/head2right Arithmetic expressions   
/head2right Harmonic expressions   
   
   
FINALTERM EXAMINATION   
Fall 2009   
MTH202- Discrete Mathematics   
   
Question No: 1 ( Marks: 1 ) - Please choose one   
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   
In method of proof by contradiction, we suppose the statement to be proved is false.   
   
► True (Page 193)   
► False   
   
Question No: 3 ( Marks: 1 ) - Please choose one

# Page 287

Whether the relation R on the set of all integers is reflexive, symm etric, anti symmetric, or transitive,   
where (x, y) ∈∈ ∈∈R if and only if xy ≥1   
► Anti symmetric   
► Transitive   
► Symmetric   
► Both Symmetric and transitive   
http://www.maths.uq.edu.au/courses/MATH1061/wkbooksols/chap10/S10\_5 \_3solution.htm   
Question No: 4 ( Marks: 1 ) - Please choose one   
The inverse of given relation R = {(1,1),(1,2),(1,4),(3,4),(4,1)} is   
   
► {(1,1),(2,1),(4,1),(2,3)}   
► {(1,1),(1,2),(4,1),( 4,3),(1,4)}   
► {(1,1),(2,1),(4,1),(4,3),(1,4)}   
   
Question No: 5 ( Marks: 1 ) - Please choose one   
A circuit with one input and one output signal is called.   
   
► NOT-gate (or inverter) (Page 31)   
► OR- gate   
► AND- gate   
► None of these   
   
Question No: 6 ( Marks: 1 ) - Please choose one   
A sequence in which common difference of two consecutive term s is same is called   
   
► geometric mean   
► harmonic sequence   
► geometric sequence   
► arithmetic progression (Page 146)   
   
Question No: 7 ( Marks: 1 ) - Please choose one   
If the sequence { } ( ) 2. 3 5 nn  
na= − + then the term a! is   
► -1   
► 0   
► 1   
► 2   
   
Question No: 8 ( Marks: 1 ) - Please choose one   
How many integers from 1 through 100 must you pick in order to be sure of getti ng one that is divisible by   
5?   
► 21   
► 41   
► 81 (Page 241)   
► 56   
   
Question No: 9 ( Marks: 1 ) - Please choose one   
What is the probability that a randomly chosen positive two-digit number i s a multiple of 6?   
   
► 0.5213   
► 0.167 (Page 254)

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► 0.123   
   
Question No: 10 ( Marks: 1 ) - Please choose one   
If a pair of dice is thrown then the probability of getting a total of 5 or 11 is   
►1  
18   
   
►1  
9   
►1  
6   
   
()()()()  
( ) ( )5 1,4 2,3 , 3, 2 , 4,1   
11 5,6 , 6,5   
5&11 6   
2 6 6 36   
6 1 Probability 36 6 Outcomeswithsumof   
Outcomeswithsumof   
Totaloutcomes for   
Totaloutcome for dice =  
=  
=  
= × =   
= =   
   
Question No: 11 ( Marks: 1 ) - Please choose one   
If a die is rolled then what is the probability that the number is gre ater than 4   
   
►1  
3   
   
►3  
4   
   
►1  
2   
   
4 5,6   
2 1 Probability 6 3 Numbergreaterthan =  
= =   
Question No: 12 ( Marks: 1 ) - Please choose one   
If a coin is tossed then what is the probability that the number is 5   
   
►1  
2   
► 0   
► 1   
Wrong Question   
   
Question No: 13 ( Marks: 1 ) - Please choose one   
If A and B are two sets then The set of all elements that belong to both A and B , is

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► A ∪ B   
► A ∩ B (Page 42)   
► A--B   
► None of these   
   
Question No: 14 ( Marks: 1 ) - Please choose one   
If A and B are two sets then The set of all elements that belong to A but not B , is   
   
► A ∪ B   
► A ∩ B   
► None of these   
► A—B   
   
Question No: 15 ( Marks: 1 ) - Please choose one   
If A, B and C are any three events, then P(A ∪∪ ∪∪B∪∪ ∪∪C) is equal to   
► P(A) + P(B) + P(C)   
► P(A) + P(B) + P(C)- P(A□B) - P (A □C) - P(B □C) + P(A □B □C) (Page 264)   
► P(A) + P(B) + P(C) - P(A∩B) - P (A ∩C) - P(B ∩C)   
► P(A) + P(B) + P(C) + P(A ∩B ∩C)   
   
Question No: 16 ( Marks: 1 ) - Please choose one   
If a graph has any vertex of degree 3 then   
► It must have Euler circuit   
► It must have Hamiltonian circuit   
► It does not have Euler circuit   
   
Question No: 17 ( Marks: 1 ) - Please choose one   
The contradiction proof of a statement p q involves   
   
► Considering p and then try to reach q   
► Considering ~q and then try to reach ~p   
► Considering p and ~q and try to reach contradiction (Not sure)   
► None of these   
   
Question No: 18 ( Marks: 1 ) - Please choose one   
How many ways are there to select a first prize winner a second prize wi nner, and a third prize winner   
from 100 different people who have entered in a contest.   
   
► None of these   
► P(100,3)   
► P(100,97)   
► P(97,3)   
   
Question No: 19 ( Marks: 1 ) - Please choose one   
A vertex of degree 3 is called a   
► Terminal vertex   
► Internal vertex (Page 323)   
   
Question No: 20 ( Marks: 1 ) - Please choose one

# Page 290

Suppose that a connected planar simple graph has 30 edges. If a plane drawing of th is graph has 20 faces,   
how many vertices does the graph have?   
   
► 12 (Page 318)   
► 13   
► 14   
   
Question No: 21 ( Marks: 1 ) - Please choose one   
How many different ways can three of the letters of the word BYTES be chosen if the first letter must be   
B ?   
   
► P(4,2)   
► P(2,4)   
► C(4,2)   
► None of these   
   
Question No: 22 ( Marks: 1 ) - Please choose one   
For the given pair of graphs whether it is   
   
   
   
► Isomorphic   
► Not isomorphic   
   
Question No: 23 ( Marks: 1 ) - Please choose one   
On the set of graphs the graph isomorphism is   
   
► Isomorphic Invariant (Page 307)   
► Equivalence relation   
► Reflexive relation   
   
Question No: 24 ( Marks: 1 ) - Please choose one

# Page 291

A matrix in which number of rows and columns are equal is called   
   
► Rectangular Matrix   
► Square Matrix (Page 289)   
► Scalar Matrix   
   
Question No: 25 ( Marks: 1 ) - Please choose one   
If the transpose of any square matrix and that matrix are same then matrix i s called   
   
► Additive Inverse   
► Hermition Matrix   
► Symmetric Matrix (Page 299)   
   
Question No: 26 ( Marks: 1 ) - Please choose one   
The number of k-combinations that can be chosen from a set of n elements can be written as   
► nCk (Page 225)   
► kCn   
► nPk   
► kPk   
   
Question No: 27 ( Marks: 1 ) - Please choose one   
The value of C(n, 0) =   
► 1 (Page 226)   
► 0   
► n   
► None of these   
   
Question No: 28 ( Marks: 1 ) - Please choose one   
If the order does not matter and repetition is not allowed then total n umber of   
ways for selecting k sample from n. is   
   
► P(n,k)   
► C(n,k)   
► nk   
► C(n+k-1,k) (Page 225)   
   
Question No: 29 ( Marks: 1 ) - Please choose one   
If A and B are two disjoint sets then which of the following must b e true   
   
► n(A ∪∪ ∪∪B) = n(A) + n(B) (Page 257)   
► n(A ∪B) = n(A) + n(B) - n(A∩B)   
► n(A ∪B)= ø   
► None of these   
   
Question No: 30 ( Marks: 1 ) - Please choose one   
Among 200 people, 150 either swim or jog or both. If 85 swim and 60 swim and jog, how many jo g?   
   
► 125 (Page 241)   
► 225   
► 85

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► 25   
   
Question No: 31 ( Marks: 1 ) - Please choose one   
If two sets are disjoint, then P∩Q is   
   
► ∅∅ ∅∅   
► P   
► Q   
► P ∪Q   
   
Question No: 32 ( Marks: 1 ) - Please choose one   
Every connected tree   
   
► does not have spanning tree   
► may or may not have spanning tree   
► has a spanning tree (Page 329)   
   
Question No: 33 ( Marks: 1 ) - Please choose one   
When P(k) and P(k+1) are true for any positive integer k, then P(n) is not t rue for all +ve Integers.   
   
► True (Lecture 23)   
► False   
   
Question No: 34 ( Marks: 1 ) - Please choose one   
When 3k is even, then 3k+3k+3k is an odd.   
   
► True   
► False   
   
Question No: 35 ( Marks: 1 ) - Please choose one   
5n -1 is divisible by 4 for all positive integer values of n.   
   
► True   
► False   
   
Question No: 36 ( Marks: 1 ) - Please choose one   
Quotient –Remainder Theorem states that for any positive integer d, ther e exist unique integer q and r   
such that n=d.q+ r and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.   
   
► 0≤r<d (Page 201)   
► 0<r<d   
► 0≤d<r   
► None of these   
   
Question No: 37 ( Marks: 1 ) - Please choose one   
The given graph is

# Page 293

► Simple graph   
► Complete graph   
► Bipartite graph   
► Both (i) and (ii)   
► Both (i) and (iii)   
   
Question No: 38 ( Marks: 1 ) - Please choose one   
An integer n is even if and only if n = 2k for some integer k.   
   
► True (Page 187)   
► False   
► Depends on the value of k   
   
Question No: 39 ( Marks: 1 ) - Please choose one   
The word "algorithm" refers to a step-by-step method for performin g some action.   
   
► True (Page 201)   
► False   
► None of these   
   
Question No: 40 ( Marks: 1 ) - Please choose one   
The adjacency matrix for the given graph is   
   
   
   
 0 1 1 0 0   
 1 0 0 1 0   
 ► 1 0 0 1 1   
 0 0 1 0 1   
 1 0 0 1 0   
   
 0 1 1 0 1

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1 0 0 0 0   
 ► 1 0 0 1 1   
 0 0 1 0 1   
 1 0 1 1 0   
   
 0 1 0 0 1   
 1 0 0 0 0   
► 1 0 0 1 0   
 0 0 1 0 1   
 0 0 1 1 0   
► None of these   
   
   
   
FINALTERM EXAMINATION   
Fall 2008   
MTH202- Discrete Mathematics (Session - 3)   
   
Question No: 1 ( Marks: 1 ) - Please choose one   
When 5 k is even, then 5 k+5 k+5 k is odd.   
   
/head2right True   
/head2right False   
   
Question No: 2 ( Marks: 1 ) - Please choose one   
An arrangement of objects without the consideration of order is calle d   
   
/head2right Combination   
/head2right Selection   
/head2right None of these   
/head2right Permutation   
   
   
Question No: 3 ( Marks: 1 ) - Please choose one   
In the following graph   
   
   
   
   
   
How many simple paths are there from 1v  
 to 4v

# Page 295

/head2right 2   
/head2right 3   
/head2right 4   
   
Question No: 4 ( Marks: 1 ) - Please choose one   
Changing rows of matrix into columns is called   
   
/head2right Symmetric Matrix   
/head2right Transpose of Matrix (Page 229)   
/head2right Adjoint of Matrix   
   
Question No: 5 ( Marks: 1 ) - Please choose one   
 The list of the degrees of the vertices of graph in non increasing order is ca lled   
/head2right Isomorphic Invariant   
/head2right Degree Sequence (Page 307)   
/head2right Order of Graph   
   
Question No: 6 ( Marks: 1 ) - Please choose one   
A vertex of degree greater than 1 in a tree is called a   
/head2right Branch vertex (Page 323)   
/head2right Terminal vertex   
/head2right Ancestor   
   
Question No: 7 ( Marks: 1 ) - Please choose one   
The word "algorithm" refers to a step-by-step method for performin g some action   
   
/head2right True (Page 201)   
/head2right False   
/head2right None of these   
   
   
Question No: 8 ( Marks: 1 ) - Please choose one   
The sum of two irrational number must be an irrational number   
   
/head2right True   
/head2right False (Page 197)   
   
Question No: 9 ( 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·s, then   
   
/head2right r = 1 or s = 1. (Page 187)   
/head2right r = 1 or s = 0.   
/head2right r = 2 or s = 3.   
/head2right None of these   
   
   
Question No: 10 ( Marks: 1 ) - Please choose one   
An integer n is even if, and only if, n = 2k for some integer k.   
   
/head2right True (Page 187)

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/head2right False   
/head2right Depends on the value of k   
   
   
Question No: 11 ( Marks: 1 ) - Please choose one   
For any two sets A and B, A – (A – B) =   
/head2right A Ç B   
/head2right A È B   
/head2right A – B   
/head2right None of these   
   
   
Question No: 12 ( Marks: 1 ) - Please choose one   
A walk that starts and ends at the same vertex is called   
   
/head2right Simple walk   
/head2right Circuit   
/head2right Closed walk (Page 292)   
   
Question No: 14 ( Marks: 1 ) - Please choose one   
Two distinct edges with the same set of end points are called   
   
/head2right Isolated   
/head2right Incident   
/head2right Parallel (Page 284)   
   
Question No: 15 ( Marks: 1 ) - Please choose one   
The probability of getting 2 heads in two successive tosses of a balanced coin is   
/head2right 1  
4   
/head2right 1  
2   
/head2right 2  
3   
   
Question No: 16 ( Marks: 1 ) - Please choose one   
What is the probability of getting a number greater than 4 when a die is thr own?   
/head2right 1  
2   
/head2right 3  
2   
/head2right 1  
3

# Page 297

4 5,6   
2 1 Probability 6 3 Numbergreaterthan =  
= =   
Question No: 17 ( Marks: 1 ) - Please choose one   
If two relations are reflexive then their composition is   
/head2right Antisymmetric   
/head2right Reflexive   
/head2right Irreflexive   
/head2right Symmetric   
   
Question No: 19 ( Marks: 1 ) - Please choose one   
Select the correct one   
/head2right A proof by contradiction is based on the fact that a statement can be t rue and false at the same time.   
/head2right A proof by contraposition is based on the logical equivalence between a stat ement and its   
contradiction.(Page 198)   
/head2right The method of loop invariants is used to prove correctness of a loop without any conditions.   
/head2right None of the given choices   
   
   
Question No: 20 ( Marks: 1 ) - Please choose one   
According to Demorgan’s law   
   
/head2right   
/head2right Correct   
/head2right   
/head2right