Mid-West University
Examinations Management Office
Surkhet, Nepal
End Semester Examination-2080

Level: B.Ed. / III Semester   FM: 60

Time: 3.00 hrs.   PM: 30

Sub: Discrete Mathematics (MATH 434/334)

Candidates are required to give their answers in their own words as far as practicable.

Attempt All the Questions:

Group "B"   6×5 = 30

1. Define fundamental principle of counting with examples.

2. Define function. Also find fog (x) if g(x) = 2x -3 and f (x) = 3x+2.

3. Group of 10 students 6 are girls. In how many ways can 4 students be selected quiz competition so as to include at most boys.

Or

Construct a conditional statement. Make its converse, inverse and contrapositive.

4. State and prove the associative law in set theory.

5. State and prove the D Morgan law in symbolic logic.

6. Define pigeonhole principle with its cases.

Or

Define the following terms
  a. Alphabet   b. strings   c. length of string.

Group "C"   2×10 = 20

7. Define well- ordering principle and prove that for each $n \in Z^+$

$$\sum_{i=1}^{n} I^2 = \frac{n\,(n+1)\,(2n+1)}{6}$$

8. Define the principle of inclusion and exclusion and how we use principle of inclusion and exclusion.

Or

State and prove permutation.

THE END

Mid-West University
Examinations Management Office
Surkhet, Nepal
End Semester Examination-2080
Level: B.Ed. / III Semester

Sub: Discrete Mathematics (MATH 434/334)

Roll No: ....

Group 'A'   10 × 1 = 10

Tick (✓) the best answers.

1. If $f(x) = 3x+5$ and $g(x) = x^2 + 1$ then what is the value of fog?
   a. $9x^2 + 30x + 26$
   b. $30x+9$
   c. $3x^2 + 8$
   d. all of the above

2. The other name of onto function is ...
   a. bijective
   b. surjective
   c. injective
   d. all of the above

3. Which one is the Fibonacci sequence?
   a. 1,2,4,7,..
   b. 3,5,7, 9....
   c. 1,1,2, 3, 5....
   d. all of the above

4. Who developed the pigeonhole concept?
   a. Euler
   b. Newton
   c. Dirichlet
   d. all of the above

5. When was John-venn developed the veen- diagram?
   a. late 1700s
   b. late 1800
   c. 1900
   d. all of the above

6. How many types of logical connectives are there?
   a. 5
   b. 3
   c. 2
   d. 4

7. How many ways can the word NATURE arranged in?
   a. 1300
   b. 1200
   c. 720
   d. 980

8. What is the inverse function of $f(x) = ax + b$?
   a. $\frac{y-a}{b}$
   b. $\frac{x-b}{a}$
   c. $\frac{x+b}{a}$
   d. none of the above

9. Finite state machine consists of state ...
   a. input
   b. output
   c. process
   d. both a and b

10. The number of elements in A×B are ...
    a. 3
    b. 6
    c. 9
    d. 12