Assignment 24-06-2021

1) Select the correct option 1X5=5

i) The contrapositive of p→q is
a) ~p→q b) ~p→~q
c) p→~q d) ~q→~p

ii) The proposition p^(q^~q) is a
a) contradiction b) tautology
c) both (a) and (b) d) none of the above

iii) (S,<=) is a Poset iff
a) "<=" is reflexive, antisymetric and transitive
b) "<=" is reflexive, symmetric and transitive
c) "<=" is reflexive and transitive
d) None of the above

iv) A non empty subset of N contains
a) maximal element b) Minimal element
c) least element d) greatest element

v) If p: "anil is rich" and q: " Kanchan is poor" them the symbolic form of the statement " Either Anil or Kanchan is rich" is
a) p ᵛ q b) p ᵛ ~q
c) ~p ᵛ q d) ~(p ^ q)

vi) The generating function corresponding to the sequence 1,1,0,1,1,1,1…….. is
(a) $\frac{1}{1+x} - x^2$ (b) $\frac{1}{1+x^2}$ (c) $\frac{1}{1+x} + x^2$ (d) $\frac{1}{1-x} - x^2$

vii) The solution of the recurrence relation $S_n = 2S_{n-1}$ with $S_0 = 1$ is $S_n =$
(a) 2^n (b) 2^{n-1} (c) 2^{n+1} (d) none of these

vii) The chromatic number of a graph containing a circuit of length 11 is
(a) 1 (b) 2 (c) 3 (d) none

ix) The number of ways 10 people can seat in a row so that a certain pair of them are next to each other is
(a) 10! – 9! (b) 8×9! (c) 10×9! (d) 9×10!