1) The relation between permutation and combination is ____.
   a) C (n, r) = r! P (n, r)
   b) C (n, r) = $\frac{1}{r!}$ P (n, r)
   c) C (n, r) = r! + P (n, r)
   d) C (n, r) = $\frac{r!}{P(n,r)}$
2) Which of the following statement is true?
   a) $(x+y)^n = \binom{n}{i} x^i y^{n-i}$
   b) $(x+y)^n = \binom{n}{i} x^i y^{n+i}$
   c) $(x+y)^n = \sum_{i=0}^{n}\binom{n}{i} x^i y^{n-i}$
   d) $(x+y)^n = \sum_{i=0}^{n}\binom{n}{i} x^i y^{n+i}$
3) The coefficient of x^3y^2 in the expansion of $(x+y)^5$
   a) 10
   b) 20
   c) 5
   d) 1
4) Number of solution to the equation $x_1 + x_2 + \cdots + x_n$= m, where $x_i > 0$ is ,
   a) $\binom{m-1}{n-1}$
   b) $\binom{n-1+m}{n-1}$
   c) $\binom{n-1+m}{m}$
   d) $\binom{m-1}{n}$
5) The value of $|A \cup B| =$ ____
   a) $|A| - |B| - |A \cap B|$
   b) $|A| + |B| + |A \cap B|$
   c) $|A| + |B| - |A \cap B|$
   d) $|A| + |B|$
6) Which of the following statement is true?
   a) Every non-empty subset of positive integers has least element
   b) Every non-empty subset of positive integers has greatest element
   c) Every subset of positive integers has least element
   d) Every subset of positive integers has greatest element
7) P (1) is not true for which of the following statement
   a) n(n-1) is divisible by 3
   b) n(n+1) (n+2) is divisible by 6
   c) $8^n - 3^n$is divisible by 5
   d) n(n+1) is divisible by 2
8) $n_{C_0} + n_{C_2} + n_{C_4} + \cdots \ldots \ldots \ldots =$ ____.
   a) 2^n
   b) 2^{n-1}

c) 2^{n+1}
d) 2

9) Total number of subsets of X= {1} are
a) 0
b) 1
c) 2
d) Subsets are not exist

10) In a graph If two vertices are connected by atmost one line , then the graph is _____.
a) Simple
b) Multigraph
c) Loop
d) Digraph

11) In a graph If two vertices are connected by more than one line , then the graph is _____.
a) Simple
b) Multigraph
c) Loop
d) Digraph

12) A graph in which an edge from vertex to itself, is called____.
a) Simple graph
b) Loop graph
c) Cycle
d) Wheels

13) If G(V,E) be a graph and H(V_1, E_1) be a subgraph, then _____.
a) $|V_1| \leq |V| and\ |E_1| \leq |E|$
b) $|V_1| = |V| and\ |E_1| \leq |E|$
c) $|V_1| < |V| and\ |E_1| \leq |E|$
d) $|V_1| \neq |V| and\ |E_1| \leq |E|$

14) A vertex with degree zero is called _____.
a) Odd vertex
b) Pendent vertex
c) Isolated vertex
d) Zero vertex

15) A graph is complete if ____
a) There is a path between every pair of vertices
b) Every vertex is connected to each and every other vertices
c) There is a path from a to b and b to a, for every pair of vertices
d) There is a path from a to b but not from b to a, for every air of vertices

16) If G is Planar connected graph with 'e' edges and 'v' vertices, then no. of regions in planar representation is _____.
a) e+v-2
b) e-v-2
c) e+v+2

d) e-v+2

17) Following graph is not planar
   a) Complete graph K_3
   b) Cycle C_4
   c) Complete graph K_4
   d) Complete bipartite graph $K_{3,3}$

18) Chromatic number of complete bipartite graph $K_{m,n}$= ____.
   a) 1
   b) 2
   c) m
   d) n

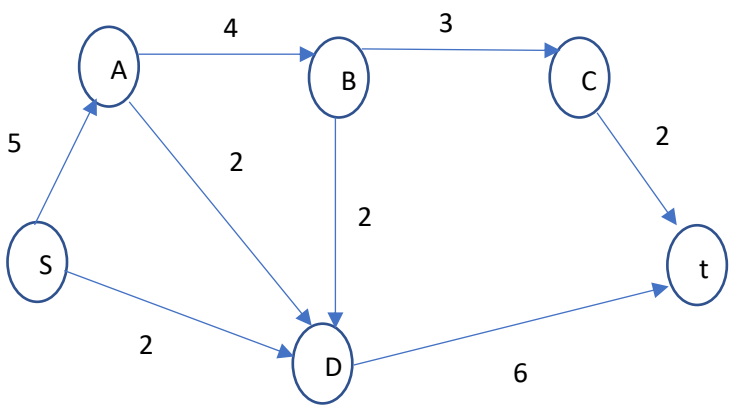
19) Number of edges in graph with 10 vertices each of degree 6 is ___.
   a) 60
   b) 30
   c) 40
   d) 50

20) Prim's algorithm is used to find _____.
   a) Spanning tree
   b) Minimum spanning tree
   c) Spanning subgraph
   d) Induced subgraph

21) In a network flow, _____
   a) Inflow (v) = outflow (v), for all v∈ V-{s,t}
   b) Inflow (v) = outflow (v), for all v∈ V
   c) Inflow (v) = outflow (v), for all v∈ V – {s}
   d) Inflow (v) = outflow (v), for all v∈ V-{t}

22) What is the sink?
   a) A vertex with no leaving edges
   b) A vertex with no coming edges
   c) Centre vertex
   d) A vertex with least weight

23) What is the value of maximum flow in the following network?
   a) 5
   b) 7
   c) 8
   d) 9



24) Relation between flow and capacity is ____.

a) Flow f(x, y) = Capacity c(x, y)
b) Flow f(x, y) < Capacity c(x, y)
c) Flow f(x, y) > Capacity c(x, y)
d) Flow f(x, y) ≤ Capacity c(x, y)

25) The value of flow in a network flow is____.

a) Inflow (S)
b) Inflow(t)
c) Inflow(v) where v≠ s
d) Inflow(v) where v≠ t