Program: Computer Engineering
Curriculum Scheme: Rev2016
Examination: First/Second/Third/Final Year Semester IV
Course Code: CSL402 and Course Name: AOA

Time: 1 hour   Max. Marks: 50

For the students:- All the Questions are compulsory and carry equal marks .

Q1.	What does Maximum flow problem involve?
Option A:	finding a flow between source and sink that is maximum
Option B:	finding a flow between source and sink that is minimum
Option C:	finding the shortest path between source and sink
Option D:	computing a minimum spanning tree
Q2.	What is the source?
Option A:	Vertex with no incoming edges
Option B:	Vertex with no leaving edges
Option C:	Centre vertex
Option D:	Vertex with the least weight
Q3.	Which algorithm is used to solve a maximum flow problem?
Option A:	Prim's algorithm
Option B:	Kruskal's algorithm
Option C:	Dijkstra's algorithm
Option D:	Ford-Fulkerson algorithm
Q4.	Does Ford- Fulkerson algorithm use the idea of?
Option A:	Naïve greedy algorithm approach
Option B:	Residual graphs
Option C:	Minimum cut
Option D:	Minimum spanning tree
Q5.	The first step in the naïve greedy algorithm is?

Option A:	analysing the zero flow
Option B:	calculating the maximum flow using trial and error
Option C:	adding flows with higher values
Option D:	reversing flow if required
Q6.	A simple acyclic path between source and sink which pass through only positive weighted edges is called?
Option A:	augmenting path
Option B:	critical path
Option C:	residual path
Option D:	maximum path
Q7.	Recursion is a method in which the solution of a problem depends on _____
Option A:	Larger instances of different problems
Option B:	Larger instances of the same problem
Option C:	Smaller instances of the same problem
Option D:	Smaller instances of different problems
Q8.	Which of the following problems can't be solved using recursion?
Option A:	Factorial of a number
Option B:	Nth fibonacci number
Option C:	Length of a string
Option D:	Problems without base case
Q9.	Recursion is similar to which of the following?
Option A:	Switch Case
Option B:	Loop

Option C:	If-else
Option D:	if elif else
Q10.	Which of the following statements is true?
Option A:	Recursion is always better than iteration
Option B:	Recursion uses more memory compared to iteration
Option C:	Recursion uses less memory compared to iteration
Option D:	Iteration is always better and simpler than recursion
Q11.	Branch and bound is a _____
Option A:	problem solving technique
Option B:	data structure
Option C:	sorting algorithm
Option D:	type of tree
Q12.	Which of the following is not a branch and bound strategy to generate branches?
Option A:	LIFO branch and bound
Option B:	FIFO branch and bound
Option C:	Lowest cost branch and bound
Option D:	Highest cost branch and bound
Q13.	Which data structure is used for implementing a LIFO branch and bound strategy?
Option A:	stack
Option B:	queue
Option C:	array
Option D:	linked list

Q14.	Choose the correct statement from the following.
Option A:	branch and bound is more efficient than backtracking
Option B:	branch and bound is not suitable where a greedy algorithm is not applicable
Option C:	branch and bound divides a problem into at least 2 new restricted sub problems
Option D:	backtracking divides a problem into at least 2 new restricted sub problems
Q15.	What is the source?
Option A:	Vertex with no incoming edges
Option B:	Vertex with no leaving edges
Option C:	Centre vertex
Option D:	Vertex with the least weight
Q16.	Which algorithm is used to solve a maximum flow problem?
Option A:	Prim's algorithm
Option B:	Kruskal's algorithm
Option C:	Dijkstra's algorithm
Option D:	Ford-Fulkerson algorithm
Q17.	_____ is a matching with the largest number of edges.
Option A:	Maximum bipartite matching
Option B:	Maximum bipartite matching
Option C:	Stable matching
Option D:	Simplex
Q18.	How many colours are used in a bipartite graph?
Option A:	1
Option B:	2
Option C:	3
Option D:	4

Q19.	What is the simplest method to prove that a graph is bipartite?
Option A:	It has a cycle of an odd length
Option B:	It does not have cycles
Option C:	It does not have a cycle of an odd length
Option D:	Both odd and even cycles are formed
Q20.	Which of the following is not a type of graph in computer science?
Option A:	undirected graph
Option B:	bar graph
Option C:	directed graph
Option D:	weighted graph
Q21.	How many edges will a tree consisting of N nodes have?
Option A:	Log(N)
Option B:	N
Option C:	N – 1
Option D:	N + 1
Q22.	Minimum number of unique colors required for vertex coloring of a graph is called?
Option A:	vertex matching
Option B:	chromatic index
Option C:	chromatic number
Option D:	color number
Q23.	How many unique colors will be required for proper vertex coloring of an empty graph having n vertices?
Option A:	0
Option B:	1
Option C:	2

Option D:	n
Q24.	Which of the following is an NP complete problem?
Option A:	Hamiltonian cycle
Option B:	Travelling salesman problem
Option C:	Calculating chromatic number of graph
Option D:	Finding maximum element in an array
Q25.	What is the condition for proper edge coloring of a graph?
Option A:	Two vertices having a common edge should not have same color
Option B:	Two vertices having a common edge should always have same color
Option C:	No two incident edges should have the same color
Option D:	No two incident edges should have different color