BRAINWARE UNIVERSITY

Term End Examination 2023-2024
Programme – MBA-2022/MBA-2023
Course Name – Quantitative Techniques
Course Code - MBA208
(Semester II)

Full Marks : 60   **Time : 2:30 Hours**

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A
(Multiple Choice Type Question)   1 x 15=15

1.   *Choose the correct alternative from the following :*

(i)   Define Linear Programming problem.

a) A problem involving linear relationships between variables

b) A problem involving non-linear relationships between variables

c) A problem involving only one variable

d) A problem involving no variables

(ii) Identify which of the following is NOT an assumption of Linear Programming.

a) Additivity

b) Divisibility

c) Continuity

d) Non-negativity

(iii) Choose which of the following is not a method of solving Linear Programming problems

a) Simplex Method

b) Branch and Bound Method

c) Genetic Algorithm

d) Gauss-Seidel Method

(iv) Select which of the following is not a type of constraint in Linear Programming.

a) Equality constraint

b) Inequality constraint

c) Non-negativity constraint

d) Linear constraint

(v)   Differentiate between a feasible solution and an optimal solution in Linear Programming.

a) A feasible solution satisfies all the constraints, whereas an optimal solution is the best feasible solution

b) A feasible solution satisfies some of the constraints, whereas an optimal solution is the best feasible solution

c) A feasible solution satisfies none of the constraints, whereas an optimal solution satisfies all the constraints

d) A feasible solution is not used in Linear Programming

(vi) Identify the Linear Programming problem when there are more variables than constraints.

a) Infeasibility

b) Inconsistency

c) Unboundedness

d) Degeneracy

(vii) Select the special case of Linear Programming problem that deals with finding the maximum profit or minimum cost.

a) Transportation problem

b) Assignment problem

c) Transshipment problem

d) Integer Programming problem

(viii) Select the method used to solve Linear Programming problems?

a) By using Graphical Method

b) By Using Simplex Method

c) Both 1 and 2 methods are used

d) None of the above

(ix) Explain dual problem in linear programming.

a) A different version of the same problem

b) A problem that is similar to the original problem but with different constraints

c) A problem that is opposite to the original problem

d) A problem that has a different objective function compared to the original problem

(x) Choose the purpose of the transportation approach for locational analysis.

a) Minimization of total costs

b) Minimization of only total shipping costs

c) Minimization of total variable costs

d) Minimization of total fixed costs

(xi) Select the method(s) that can be used to solve the assignment problem.

a) Simplex algorithm

b) Gradient descent algorithm

c) Hungarian algorithm

d) K-means clustering algorithm

(xii) Select the condition that must hold for a feasible solution to be optimalin assignment

a) All agents are assigned to a task

b) All tasks are assigned to an agent

c) The sum of assigned values is maximal

d) The sum of assigned values is minimal

(xiii) Choose the correct option: limitation of CPM is

a) It assumes that activity durations are certain and cannot change

b) It does not take into account resource constraints

c) It cannot be used for complex projects

d) It is only useful for small projects

(xiv) Recoomend the drawback of the AHP approach.

a) It can be time-consuming and complex

b) It cannot handle uncertainties

c) It cannot handle multiple criteria

d) It is not widely applicable

(xv) Select the queuing model that allow for more than one server

a) M/M/1

b) M/D/1

c) M/G/1

d) M/M/C

Group-B
(Short Answer Type Questions)

3 x 5=15

2. Write down the different steps for application Operations Research in business? (3)
3. Define degeneracy. Narrate the procedure to deal with the problem of degeneracy in transportation. (3)
4. Describe the various types of models for solving operations research problems. (3)
5. Distinguish between CPM and PERT. (3)
6. Write down the various steps in VAM. (3)

OR

Distinguish between LST and LET in network analysis. (3)

Group-C
(Long Answer Type Questions)

5 x 6=30

7. Discuss the finish-to-start (FS), start-to-start (SS), finish-to-finish (FF), and start-to-finish (SF) and their relationships in project network diagrams. (5)
8. Discuss the merits and limitations of LPP. (5)
9. Distinguish between correlation and regression. (5)
10. Explain stratified sampling. (5)
11. Summarize the economic interpretation of the dual mode. (5)
12. A man and his wife appear in an interview for two vacancies in the same post. The probability (5) of husband's selection is (1/7) and the probability of wife's selection is (1/5). What is the probability that only one of them is selected?

OR

Three unbiased coins are tossed. What is the probability of getting at most one head? (5)

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