BCA
(SEM.IV) BCA-4004:
OPTIMIZATION TECHNIQUES

REVISED QUESTIONS ANSWERS

EXAMINATION PAPER OF (2022-23)	
Questions	**Answers**
6. The formula for free float is …… (A) Total float-slack of tail event (B) Total-float-LFT of head event (C) Total-float-EFT of head event (D) Total float – slack of head event	None of them are correct [Free Float = ES (of successor) – EF (of current)]
35. A transportation problem is said to be balanced if ……. (A) quantity demanded < quantity supplied (B) quantity demanded > quantity supplied (C) quantity demanded ≠ quantity supplied (D) quantity demanded = quantity supplied	(D) quantity demanded quantity supplied
45. The purpose of a dummy row or column in an assignment problem is to : (A) Obtain balance between total activities and total resources. (B) Prevent a solution from becoming degenerate (C) Provide a means. of representing a dummy problem (D) None of the above	(a) Obtain balance between total activities and total resources.
57. ……. is an event oriented network diagram? (A) CPM (B) PERT (C) Histogram (D) Ogive	(B) PERT

94. When the total allocations in a transportation model of m*n size is not equals to m+n-1. This situation is known as_____. (A) unbalance situation (B) tie situation (C) degeneracy (D) None of the above	(C) degeneracy
EXAMINATION PAPER OF (2021-22)	
11. The assignment problem will have alternative solutions when they total opportunity cost matrix has : (A) At least one zero in each row and column (B) When all rows have two zero (C) When there is a tie between zero opportunity cost cells (D) If two diagonal elements are zeros	(C) When there is a tie between zero opportunity cost cells
12. The average arrival rate in a single server queuing system is 10 customers per hour and average service rate is 15 customers per hour. The average time that a customer must wait before it is taken up for service shall be …….. minutes. (A) 6 (B) 8 (C) 10 (D) 12	(B) 8
13. The coefficient of an artificial variable in the objective function of penalty method are always assumed to be…….. (A) 0 (B) 1 (C) M (D) -M	(C) M (for minimization problems, the artificial variable is assigned a large positive value, +M). & For maximization problems, it would be (D) -M.
24. Which technique is used in finding a solution for optimizing a given objective, such as profit maximization or cost reduction under certain constraints?	(D) Linear Programming

(A) Quailing theory (B) Waiting line (C) Both (A) and (B) (D) Linear Programming	
28. Which of the following methods is used to verify the optimality of the current solution of the transportation problem? (A) Least cost method (B) Vogal's approximation method (C) Modifies distribution method (D) All of the above	(C) Modifies distribution method
45. Cells in the transportation problem having positive allocation will be called : (A) Cells (B) Occupied (C) Unoccupied (D) Table	(B) Occupied
48. If the primal problem has n constraints and m variables then the number of constraints in the dual problem is : (A) mn (B) m+n (C) m-n (D) m/n	(A) mn
67. Dual of the dual is : (A) Primal (B) Dual (C) Either dual or primal (D) None of these	(A) Primal
70. In n job and two machines (say M1 and M2) sequencing problems with order of processing the jobs is M1M2 …… (A) Job having minimum time on machine M2 is processed in the first (B) Job having minimum time on machine M2 is processed in the last (C) Job having minimum time on machine M1 is processed in the last (D) Job having minimum time on machine M2 is processed in the last	(D) Job having minimum time on machine M2 is processed in the last

74. Group replacement policy is most suitable for : (A) Trucks (B) Street light bulbs (C) Machines (D) New cars	(B) Street light bulbs
78. To resolve degeneracy at the initial solution, a very small quantity is allocated in ……. (A) Occupied (B) Unoccupied (C) No (D) Finite	(B) Unoccupied
80. In an assignment problem involving 5 workers and 5 jobs, total number of assignment possible are …….. (A) 5 (B) 10 (C) 15 (D) 20	(A) 5
86. Customer behavior in which the customer moves from one queue to another in a multiple channel, situation is (A) Balking (B) Reneging (C) Jockeying (D) Alternating	(C) Jockeying
97 The order cost per order of an inventory is `. 400 with an annual carrying cost of `. 10 per unit. The Economic Order quantity (EOQ) for an annual demand of 2000 units is : (A) 400 (B) 4 (C) 480 (D) 500	(A) 400
MODEL PAPER – I	
5. An iso-profit line represents_____. (A) An infinite number of solutions all of which yield the same profit (B) An infinite number of solution all of which yield the same cost (C) An infinite number of optimal solutions (D) A boundary of the feasible region	(A) An infinite number of solutions all of which yield the same profit

41. What is concerned with the prediction of replacement costs and determination of the most economic replacement policy ? (A) Search Theory (B) Theory of replacement (C) Probabilistic Programming (D) None of the above	(B) Theory of replacement
89. A basic solution which also satisfies the condition in which all basic variables are non-negative is called_____. (A) Basic feasible solution (B) Feasible solution (C) Optimal solution (D) None of the above	(A) Basic feasible solution
95. Master schedule is prepared for (A) Single product continuous production (B) Multi product batch production (C) Assembly product continuous production (D) Single product batch production	(B) Multi product batch production
99. Critical path on PERT/CPM chart is obtained by joining the events having_____. (A) Maximum slack (B) Minimum slack (C) Average slack (D) No slack	(D) No slack
MODEL PAPER – II	
24. Minimum inventory equals: (A) EOQ (B) Reorder level (C) Safety stock (D) Excess stock	(C) Safety stock
26. The time interval between consecutive arrivals generally follows _____distribution. (A) Normal distribution (B) Poisson distribution (C) Exponential Distribution (D) Rectangular distribution	(C) Exponential Distribution

37. In a given system of m simultaneous linear equations in n unknowns (m<n) there will be _____. (A) n basic variables (B) m basic variables (C) (n-m) basic variables (D) (n+m) basic variables	(B) m basic variables
53. While solving an assignment problem, an activity is assigned to a resource through a square with zero opportunity cost because the objective is to_____. (A) minimize total cost of assignment. (B) reduce the cost of assignment to zero (C) reduce the cost of that particular assignment to zero (D) reduce total cost of assignment	(A) minimize total cost of assignment.
95. If the given Linear Programming Problem is in its canonical form then primal-dual pair is_____. (A) Symmetric (B) Un-symmetric (C) Square (D) non square	(A) symmetric
99. All the basis for a transportation problem is _____. (A) square (B) rectangle (C) triangle (D) polygon	(A) square
MODEL PAPER – III	
3. The outgoing variable row in the simplex table is called _____. (A) outgoing row (B) key row (C) basic row (D) interchanging row	(B) key row

40. Operations Research has the characteristics the it is done by a team of _____. (A) Mathematicians (B) Academics (C) All of the above (D) None of the above	(C) All of the above
42. Operations Research emphasizes on the overall approach to the system. This characteristics of Operations Research is often referred as (A) System Orientation (B) System Approach (C) Interdisciplinary Team Approach (D) none	(B) System Approach
77. What is the replacement theory? (A) A theory that deals with the replacement of old machines with new ones (B) A theory that deals with the replacement of old parts with new ones (C) A theory that deals with the replacement of old employees with new ones (D) None of the above	(A) A theory that deals with the replacement of old machines with new ones
96. What is the difference between the due date and the deadline in the job sequencing problem? (A) The due date is the date by which the job must be completed , while the deadline is the date by which the job must start (B) The due date is the date by which the job must start, while the deadline is the date by which the job must be completed (C) The due date and the deadline are the same thing (D) None of the above	(A) The due date is the date by which the job must be completed , while the deadline is the date by which the job must start

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