Reg.No. \_\_\_\_\_\_\_\_\_\_\_\_



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – April/May – 2017**

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| **Code :** | **14MA3018** | **Duration :** | **3hrs** |
| **Sub. Name :** | **OPTIMIZATION TECHNIQUES** | **Max. marks :** | **100** |

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Q. No. | Sub Div. | Questions | Course  Outcome | Marks |
| 1. |  | Solve the following LPP by using Simplex method.  Maximize    Subject to | CO1 | 20 |
| (OR) | | | | |
| 2. |  | Solve the following LPP by using dual Simplex method.  Maximize    Subject to | CO1 | 20 |
| 3. |  | Find the optimum integer solution for the following LPP using Gomary’s cutting plane method .  Maximize    Subject to | CO1 | 20 |
| (OR) | | | | |
| 4. |  | Find the optimum integer solution for the following LPP using Branch and Bound technique.  Maximize    Subject to | CO1 | 20 |
| 5. | a. | A four tone vessel can be loaded with one or more of 3 items, the following table gives the unit weight Wi in tones and unit revenue in thousands of rupees in Ri for commodity i. How should the vessel be loaded to maximize the total revenue.   |  |  |  | | --- | --- | --- | | Commodity | Wi | Ri | | A  B  C | 1  3  2 | 30  80  65 | | CO2 | 10 |
|  | b. | Solve the following NLPP using Kunch-Tucker condition...    Maximize    Subject to | CO2 | 10 |
| (OR) | | | | |
| 6. |  | Solve the following NLPP by using Wolfe’s method.    Maximize    Subject to | CO2 | 20 |
| 7. |  | Find the shortest path using Dijkstra’s algorithm. | CO3 | 20 |
| (OR) | | | | |
| 8. | a. | Find the minimal spanning tree using Prim’s and Kruskal’s algorithm. | CO3 | 10 |
|  | b. | Find the shortest path using Floyd’s algorithm.  C:\Documents and Settings\Staff\Desktop\fl.bmp | CO3 | 10 |
|  | | **Compulsory:** |  |  |
| 9. |  | Find a maximum flow in the given network by using the labeling algorithm. | CO3 | 20 |

ALL THE BEST