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 – Nov/Dec – 2016**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | **Semester :** | **2016-17 ODD** |
| **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. | a. | Using simplex method,solve the following linear programming problem:  Maximize  subject to the constraints | CO1 | **20** |
| **(OR)** | | | | |
| 2. | a. | Solve the following linear programming problem using graphical method:  Minimize  subject to the constraints | CO 1 | **20** |
| 3. | a. | Find the optimum integer solution to the following linear programming problem:  Maximize  subject to the constraints:  and are integers | CO 1 | **20** |
| **(OR)** | | | | |
| 4. | a. | A vessel is to be loaded with stocks of 3 items.Each unit of item  has a weight and value . The maximum cargo weight the vessel can take is 5 and the details of the three items are as follows: Develop the recursive equation for the above case and find the most valuable cargo load without exceeding the maximum cargo weight by using dynamic programming.   |  |  |  | | --- | --- | --- | |  |  |  | | 1 | 1 | 30 | | 2 | 3 | 80 | | 3 | 2 | 65 | | CO2 | **20** |
|  |  |  |  |  |
| 5. | a. | Solve the following nonlinear programming using Langrangean method:  Maximize subject to | CO3 | **20** |
| **(OR)** | | | | |
| 6. | a. | Solve the following quadratic programming problem using Wolfe’s method”  Maximize  subject to | CO3 | **20** |
| 7. | a. | Solve the following non linear programming problem using separable programming  Maximize  subject to | CO2 | **20** |
| **(OR)** | | | | |
| 8. | a. | Find out the max over {1,2,3,…,31} using genetic algorithm approach with constraints given below and show one iiteration cycle by hand.   * Representation : binary code * Population size : 4 * 1-point crossover,bitwise mutation * Roulette wheel selection * Random initialization | CO3 | **20** |
|  | | **Compulsory:** |  |  |
| 9. | a. | Solve the following geometric programming problem :  Minimize  where | CO3 | **20** |

ALL THE BEST