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

G:\logo and QP Template\logo 3 Feb 2018 final.tif

**End Semester Examination – Nov/Dec – 2018**

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| **Code : 17CE3019** |  | **Duration :** | **3hrs** |
| **Sub. Name : SPACE STRUCTURES** |  | **Max. marks :** | **100** |

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Enumerate on single and multilayer grids used for space structures. | CO1 | 8 |
| b. | Explain how to choose configuration of the truss of space truss for the area of 30m x 30m by the designer. | CO3 | 12 |
| (OR) | | | | |
| 2. | a. | Write notes   1. Behavior of folded plates 2. Barrel Vaults   iii. Connecters | CO2 | 12 |
| b. | Summarize the advantages and disadvantages of prefabricated space structures. | CO2 | 8 |
|  |  |  |  |  |
| 3. | a. | Demonstrate the necessary condition of stressed skin design and its application in folded plate design. | CO2 | 10 |
| b. | Paraphrase the design philosophy of three dimensional structures. | CO2 | 10 |
| (OR) | | | | |
| 4. | a. | Interpret on tensegritic structures and application of tensegritic net. | CO2 | 10 |
| b. | Explain the connectors used for various types of space truss. | CO3 | 10 |
|  |  |  |  |  |
| 5. | a. | Discuss the dynamic and stability analysis conducted in a space truss. | CO5 | 10 |
| b. | Explain Tomo unit truss and modular system. | CO2 | 10 |
| (OR) | | | | |
| 6. |  | Enumerate on the software package used for space frame analysis technique. | CO4 | 20 |
|  |  |  |  |  |
| 7. | a. | Differentiate the Octatube - Nodus System node connector. | CO3 | 10 |
| b. | Write the step by step procedure for analysis of truss. | CO5 | 10 |
| (OR) | | | | |
| 8. |  | Design a domed roof over a building used as a sport arena and the building is rectangular in size 200m x 100m, cables will run across the short span in the profile using two cables with structs to control damping. The roofing will be placed directly on the top cable. The struts locate at 6m c/c and will be in compression. The spacing between cables is 1.2m | CO4 | 20 |
|  | |  |  |  |
|  | | **Compulsory**: |  |  |
| 9. | a. | Explain how formex algebra provides a convenient means for area of data generation? | CO5 | 10 |
| b. | Selecting case studies and reflect on the failures caused in the space structures. | CO5 | 10 |