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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

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

**Supplementary Examination – June – 2017**

**Subject Title: BASIC MECHANICAL ENGINEERING Time: 3 hours**

**Subject Code: 14ME1003 Maximum Marks: 100**

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| S.No | Sub. Div | Question | Course Outcome | Marks |
| 1 | a. | Define compression ratio. | CO1 | 2 |
|  | b. | Specify the functions of fuel injector. | CO1 | 3 |
|  | c. | With neat sketch, explain the working of four stroke diesel engine. | CO1 | 15 |
|  |  | OR | | |
| 2 | a. | State the differences between the Fire tube and Water tube Boiler. | CO1 | 5 |
|  | b. | Explain the construction and working of Babcock and Wilcox boiler. | CO1 | 15 |
| 3 |  | Draw the layout of a thermal power plant. State its advantages and disadvantages. | CO1 | 20 |
|  |  | OR | | |
| 4 |  | With neat sketch explain the nuclear power plant and list its limitations. | CO1 | 20 |
| 5 |  | Point out the important regions in a stress – strain curve for ductile materials and explain their importance in engineering. | CO2 | 20 |
|  |  | OR | | |
| 6 | a. | A truss member is connected to a tie bar by means of four bolts. The allowable shear stress in the bolts is 100 N/mm2. Compute the minimum diameter of bolts, if the maximum load in the bar is 120 KN. | CO2 | 15 |
|  | b. | A circular bar of 25mm diameter and 250mm long is subjected to a tensile force of 75kN and the elongation is 0.2mm. Calculate the modulus of Elasticity. | CO2 | 5 |
| 7 | a. | List the different types of welded joints with simple sketches. | CO2 | 6 |
|  | b. | Draw a neat sketch of cupola furnace and explain how cast iron is produced. | CO2 | 14 |
|  |  | OR | | |
| 8 |  | Explain the mechanical properties of metals and alloys in detail. | CO2 | 20 |
|  |  | **Compulsory:** | | |
| 9 |  | List the different types of operations carried out in a center lathe with a simple diagrams | CO2 | 20 |