**H.T No**

**Regulations:**

**A18**



**Sreenidhi Institute of Science and Technology**

(An Autonomous Institution)

**Code No: 7BC04**   **Date: 24-July-2021(AN)**

**B.Tech II-Year I- Semester Covid-19 Special External Examination, July-2021 (Regular)**

**ELEMENTS OF MECHANICAL ENGINEERING (CIVIL, EEE and ECE)**

**Time: 3 Hours Max.Marks:70**

***Note: a****) No additional answer sheets will be provided.*

*b) All sub-parts of a question must be answered at one place only, otherwise it will not be valued.*

*c) Missing data can be assumed suitably.*

**ANSWER ANY 5 OUT OF 8 QUESTIONS. EACH QUESTION CARRIES 14 MARKS.**

**Bloom's Cognitive Levels of Learning (BCLL)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Remember | L1 | Apply | L3 | Evaluate | L5 |
| Understand | L2 | Analyze | L4 | Create | L6 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  | **BCLL** | **CO(s)** | **Marks** |
| 1. | a) | Derive the expression for air standard efficiency of otto cycle. | L4 | CO1 | [7M] |
|  | b) | A reversible engine with 40% efficiency discharges 1520 kJ of heat per minute to a pond at 270C. Find the temperature of the source which supplies the heat to the engine and work done by the engine. | L4 | CO1 | [7M] |
|  |  |  |  |  |  |
| 2. | a) | Explain with the help of a sketch the working of a four stroke diesel engine. | L2 | CO2 | [7M] |
|  | b) | With a simple and neat sketch explain the working of La-Mont boiler. | L3 | CO2 | [7M] |
|  |  |  |  |  |  |
| 3. | a) | Explain the working of a Kaplan turbine. | L2 | CO3 | [7M] |
|  | b) | Describe various components used in vapour compression refrigerator. | L1 | CO3 | [7M] |
|  |  |  |  |  |  |
| 4. | a) | State the alloying elements added to steel to get alloy steels and the effect they produce. Give at least one example of each. | L2 | CO4 | [7M] |
|  | b) | Write the properties and applications of ceramics. | L1 | CO4 | [7M] |
|  |  |  |  |  |  |
| 5. | a) | Explain the working of a simple gear train. | L2 | CO5 | [7M] |
|  | b) | Differentiate between a clutch and brake. | L2 | CO5 | [7M] |
|  |  |  |  |  |  |
| 6. | a) | What are the advantages, applications and limitations of NC machine tools? | L2 | CO6 | [7M] |
|  | b) | Explain the working of CNC milling machine. | L2 | CO6 | [7M] |
|  |  |  |  |  |  |
| 7. | a) | Write a short note on lubrication of IC engines. | L1 | CO1 | [7M] |
|  | b) | Give the layout of a steam power plant and explain the purpose of each unit in it. | L1 | CO2 | [7M] |
|  |  |  |  |  |  |
| 8. | a) | Explain about various components used in robot. | L2 | CO4 | [7M] |
|  | b) | Explain about fabrication methods used for manufacturing of composite materials. | L2 | CO5 | [7M] |

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