**14EE706**

**Hall Ticket Number:**

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| **IV/IV B.Tech (Regular / Supplementary) DEGREE EXAMINATION** | | | |
| **JAN / FEB, 2021** | **Electrical & Electronics Engineering** | | |
| **Seventh Semester** | **Energy Engineering (Open Elective)** | | |
| **Time:** Three Hours | | **Maximum :** 60 Marks | |
| *Answer ALL Questions from PART-A.* | | | (1X12 = 12 Marks) |
| *Answer* ***ANY FOUR*** *questions from PART-B.* | | | (4X12=48 Marks) |
| **Part - A** | | | |

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| 1. | Answer the following in brief: | | (1X12=12 Marks) | | |
| a) | What is ultimate analysis of coal? | | |  |
| b) | “Ton of oil equivalent” is term used for what? | | |  |
| c) | State different geothermal energy resources. | | |  |
| d) | Classify three major sources of wastes for biofuels. | | |  |
| e) | Which energy is present in the water stored at higher elevation? | | |  |
| f) | Name different chemical energy storage systems. | | |  |
| g) | Name different solar systems for household use. | | |  |
| h) | State the concept of a solar concentrator. | | |  |
| i) | Name the applications of wind energy. | | |  |
| j) | What is synthesis gas? | | |  |
| k) | State the concept of fuel cell. | | |  |
| l) | Name different energy storage methods. | | |  |
| **Part - B** | | | | | |
| 2. | a) | Explain briefly gasification and liquefaction of coal. Why & how it is carried out? | | | 6M |
| b) | Draw energy chart and explain it briefly. | | | 6M |
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| 3. | 1. Classify coal grades and explain them briefly. 2. Briefly explain the renewable energy sources, applications and present status in India | | | 4M  8M | |
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| 4. | a) | Write a brief note on origin, occurrence and composition of petroleum. | | | 6M |
| b) | Explain different testing methods of petroleum products and their significance | | | 6M |
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| 5. |  | Discuss the different products obtained from the refining of petroleum at various stages and their commercial applications. | | | 12M |
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| 6. | a) | Explain the bio digestion principles and with a neat sketch explain gobar gas plant | | | 6M |
| b) | Explain geothermal energy briefly. | | | 6M |
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| 7. | a) | Briefly state the merits and limitations of solar energy.Explain solar cell with a neat sketch. | | | 6M |
| b) | What is wind power? Explain the merits, demerits, current status and technology of wind power production. | | | 6M |
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| 8 | a) | Write about energy audit in industry. | | | 4M |
| b) | State different energy storage systems and explain them briefly with neat sketches | | | 8M |
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| 9. | a) | Explain different energy conservation techniques. | | | 6M |
| b) | Briefly describe energy saving in motors and compressed air system. | | | 6M |

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