**18EEI02**

**Hall Ticket Number:**

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| **IV/IV B.Tech (Regular/Supplementary) DEGREE EXAMINATION** | | | |
| **November,2022** | **Institutional Elective (Common to all branches)** | | |
| **Seventh Semester** | **Industrial Electrical Systems** | | |
| **Time:** Three Hours | | **Maximum: 5**0 Marks | |
| *Answer Question No. 1 Compulsorily.* | | | (10X1 = 10 Marks) |
| *Answer* ***ANY ONE*** *question from each Unit.* | | | (4X10=40 Marks) |

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| 1. | a) | Define tariff . | CO1(BL1) | |  |
|  | b) | What is the metal used for fuse wires. | CO1(BL1) | |  |
|  | c) | How are electrical equipment are connected in a residential buildings. | CO2(BL1) | |  |
|  | d) | Specify the advantages of LED over the CFL Blubs | CO2(BL1) | |  |
|  | e) | one lumen per sq. meter is called | CO2(BL1) | |  |
|  | f) | Define waste light factor | CO1(BL1) | |  |
|  | g) | Write any two of Specifications of LT Breakers | CO3(BL1) | |  |
|  | h) | DOL starters are preferred up to which rating of a motor | CO3(BL1) | |  |
|  | i) | What are the criteria for selecting the PLC | CO4(BL1) | |  |
|  | j) | Mention different types of energy sources in distributed generation | CO4(BL1) | |  |
| **Unit - I** | | | | | |
| 2. | a) | Explain different types of electrical wiring system. | CO1(BL1) | **5M** | |
|  | b) | An industrial consumer having maximum demand of 100 kW maintains a load factor of 60%. The tariff rates are Rs. 1000/- per kVA of maximum demand per annum plus Rs.5/- per kWh of energy consumed. If the average power factor is 0.8 lagging. Calculate the total energy consumed per annum and annual electricity bill. | CO1(BL1) | **5M** | |
|  |  | **(OR)** |  |  | |
| 3. | a) | List out steps to be followed for safety precautions against an electric shock. | CO1(BL1) | **5M** | |
|  | b) | State IE rules used in commercial wiring installation. | CO1(BL1) | **5M** | |
| **Unit - II** | | | | | |
| 4. | a) | Define the following terms related to illumination systems: i. Utilization factor ii. Depreciation factor iii. Space to height ratio iv. Absorption factor | CO2(BL1) | **5M** | |
|  | b) | A room with an area of 6 × 9 m is illustrated by ten 80-W lamps. The luminous efficiency of the lamp is 80 lumens/W and the coefficient of utilization is 0.65. Find the average illumination. | CO2(BL2) | **5M** | |
|  |  | **(OR)** |  |  | |
| 5. | a) | Explain Construction and working of compact fluorescent light (CFL) | CO2(BL1) | **5M** | |
|  | b) | Explain about design of Lightning scheme for a Residential and Commercial Premises. | CO2(BL1) | **5M** | |
| **Unit - III** | | | | | |
| 6. | a) | Illustrate the techniques adopted for improvement in power factor for industrial installation. | CO3(BL1) | **5M** | |
|  | b) | A 3—phase, 5 kW induction motor has a p.f of 0.75 lagging. A bank of capacitor is connected in delta across the supply terminals and p.f raised to 0.9 lagging. Determine the Kvar rating of capacitor connected in each phase. | CO3(BL1) | **5M** | |
|  |  | **(OR)** |  |  | |
| 7. | a) | Compare PCC and MCC panels | CO3(BL1) | **5M** | |
|  | b) | List out steps for selections of transformer |  |  | |
| **Unit - IV** | | | | | |
| 8. | a) | Explain about DG Systems. | CO4(BL2) | **5M** | |
|  | b) | Demonstrate how to select the size of battery for an UPS | CO4(BL1) | **5M** | |
|  |  | **(OR)** |  |  | |
| 9. | a) | Draw and explain the block diagram of programmable logic controller | CO4(BL1) | **5M** | |
|  | b) | Explain about SCADA Systems for distribution automation. | CO4(BL1) | **5M** | |

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| **IV/IV B.Tech (Regular) DEGREE EXAMINATION** | | | |
| **November, 2022** | **Electrical and Electronics Engineering** | | |
| **Seventh Semester** | **Industrial Electrical Systems** | | |
| **Time:** Three Hours | | **Maximum:** 50 Marks | |
| *Answer Question No.1 compulsorily.* | | | (10X1 = 10 Marks) |
| *Answer ONE question from each unit.* | | | (4X10=40 Marks) |
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| 1. | a) | Any two different tariff structures. | 1M |
|  | b) | Explanation about metal used | 1M |
|  | c) | Explanation about house wiring connection | 1M |
|  | d) | Any two advantages | 1M |
|  | e) | Definition of Lumen per sq. meter | 1M |
|  | f) | Definition waste light factor | 1M |
|  | g) | Any Specification of LT breakers | 1M |
|  | h) | Explanation of limitation of DOL starter | 1M |
|  | i) | Any two criteria’s | 1M |
|  | j) | Any two different energy sources | 1M |
| 2. | a) | Explanation about any two electrical wiring | 5M |
|  | b) | Calculation of energy consumed  Annual current bill | 3M  2M |
| 3. | a) | Safety measures against electric shock  Safety precautions against electric shock | 2M  3M |
|  | b) | Any four IE rules used for residential wiring installation. | 5M |
| 4. | a) | Explanation of Definition of i)Utilization factor ii). Depreciation factor iii). Space to height ratio iv). Absorption factor | 5M |
|  | b) | Calculation of average illumination | 5M |
| 5. | a) | Explanation of CFL working  Diagram | 3M  2M |
|  | b) | Calculation of average intensity of illumination | 5M |
| 6. | a) | Explanation of methods of improvement in power factor | 5M |
|  | b) | Calculation of Kvar rating of capacitor | 5M |
| 7. | a) | Explanation of comparison of PCC and MCC | 5M |
|  | b) | Any four factors for selection of transformer | 5M |
| 8. | a) | Find Diagram  Expl Explanation | 2M  3M |
|  | b) | Explanation how to select the size of battery. | 5M |
| 9. | a) | Block diagram of PLC  Explanation of each block | 3M  2M |
|  | b) | Any four input & output device explanation | 5M |