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PRESIDENCY UNIVERSITY BENGALURU

SCHOOL OF ENGINEERING

MAKEUP EXAMINATION - JULY 2024

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| **Semester :VI** | **Date :03-07-2024** |
| **Course Code : EEE3031** | **Time : 01:30pm to 4:30pm** |
| **Course Name : Electrical Power utilization** | **Max Marks :100** |
| **Program : B. Tech** | **Weightage :50%** |

**Instructions:**

1. *Read all questions carefully and answer accordingly.*
2. *Question paper consists of 3 parts.*
3. *Scientific and non-programmable calculator are permitted.*
4. *Do not write any information on the question paper other than Roll Number.*

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| **PART A** | | | |
| **ANSWER ANY 4 QUESTIONS 4Q X 5M=20M** | | | |
| 1 | Explain the concept of method of Dielectric heating. | (CO 1) | [Knowledge] |
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| 2 | Illustrate the applications of resistance heating. | (CO1) | [Knowledge] |
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| 3 | Describe direct core type furnace with neat sketches | (CO1) | [Knowledge] |
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| 4 | Explain the laws of illumination. | (CO2 | [Knowledge] |
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| 5 | Write short notes on polar curves. | (CO2) | [Knowledge] |
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| 6 | Write short notes on specific energy consumption. | (CO3) | [Knowledge] |
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| **PART B** | | | |
| **ANSWER ANY 5 QUESTIONS 5Q X 10M=50M** | | | |
| 7 | Explain the different methods of electric welding and their relative advantages. | (CO1) | [Comprehension] |
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| 8 | Explain various lighting schemes with figure. | (CO2) | [Comprehension] |
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| 9 | Explain the energy output using simplified speed-time curves. | (CO3) | [Comprehension] |
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| 10 | Explain the factors that affect the schedule speed of a train. | (CO3) | [Comprehension] |
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| 11 | An electric train has an average speed of 42 km/hr on a level track between stops 1400 m apart. It is accelerated at 1.7 km/hr/sec and it is braked at 3.3 km/hr/sec. Draw the speed-time curve and estimate the specific energy consumption. Assume tractive resistance as 50 NW/Tonne and allow 10% rotational inertia. | (CO3 | [Comprehension] |
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| 12 | Explain the calculations of tractive effort required for train propulsion. | (CO4) | [Comprehension] |
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| 13 | A train is to run between two stations 1.6 km apart at an average speed of 40 kmph, the run is to be made to a quadrilateral N-T curve. Maximum speed is to be limited to 64 kmph, acceleration, to 2 kmphps, coasting retardation to 0.16, and braking retardation to 3.2, determine the duration of a acceleration, coasting and braking periods. | (CO4) | [Comprehension] |
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| **PART C** | | | |
| **ANSWER ANY 2 QUESTIONS 2Q X 15M=30M** | | | |
| 14 | Describe various methods of starting and speed control of A.C series and 3-phase induction motors. | (CO3) | [Apply] |
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| 15 | Explain coefficient of adhesion and How the value of coefficient of adhesion affects the slipping and skidding of the driving wheels of traction unit? | (CO3) | [Apply] |
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| 16 | Explain the following: a) Electric traction b) Advantages of steam engine c) Types of track electrification systems. d) Comparisons between pure D.C and A.C systems? | (CO4) | [Apply] |
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