

Duration – 3 Hours

Total Marks - 80

- N.B.:-** (1) Question No.1 is compulsory.
 (2) **Attempt** any **three** questions out of remaining **five** questions.
 (3) Assume suitable data if necessary and justify the same.

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| Q 1. | Answer the following questions.
A) What are the various welding techniques?
B) Explain the effect of weight transfer in traction.
C) Draw and explain the electric circuit of domestic refrigerator.
D) What are the different configurations of Hybrid Electric Vehicle? | 20 |
| Q 2 a) | Write a detailed note on photometers. | 10 |
| Q 2 b) | What do you mean by quadrilateral speed time curve. Explain. | 10 |
| Q 3 a) | Design the interior illumination required for a workshop with example. | 10 |
| Q 3 b) | Why it is required to study the heating methods used? | 10 |
| Q 4 a) | What are the different types of track electrification? | 10 |
| Q 4 b) | Draw and explain speed control methods for traction purpose | 10 |
| Q 5 a) | Write a short note on specific energy consumption of traction. | 10 |
| Q 5 b) | Explain and Compare the types of motors used for traction in EV/HEV | 10 |
| Q 6 a) | What are the factors which are affecting the scheduled speed of train? | 10 |
| Q 6 b) | Explain and the working principle of arc furnace with emphasis on power supply requirements for the same. | 10 |
