**GITAM University, Hyderabad**

**School of Technology**

**Mid Term Examinations - II**

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**Branch/ Semester: EEE/V Date:03/03/2020**

**Subject Code: EUREE Duration: 75 Minutes**

**Subject Name electrical power utilization and illumination Max. Marks: 30**

**(Answer to Q1 is Compulsory) (5x2=10 Marks)**

Q. 1

a) Differentiate between kando system and composite system of track electrification..

b) Differentiate between speed time curve used for main line and suburban services.

c) Define specific energy consumption and state its units.

d) What is coefficient of adhesion? Give its significance.

e) List the factors effecting scheduled speed.

**(Answer any four questions from the following) (4x5=20 Marks)**

2) Discuss the merits and demerits of direct electric traction with respect to nonelectric and indirect electric traction systems.

3) Arrive at a relation for distance between two stops in terms of max speed time of run, acceleration and retardation for a locomotive running in main line service.

4 An electric train of weight 250 tone has eight motors geared to driving wheels each of 85cm diameter. The track resistance is 50N/tone. The effect of rotational inertia is 8% of train weight , the gear ratio is 4-1 , and the gearing efficiency is 85% . Determine the torque developed on each motor to accelerate the train to a speed of 50Kmph in 30 seconds up a gradient of 1 in 200.

5) A train is required to run between two stations 1.5Km apart at an average speed of 42Kmph. The run is made to a simplified quadrilateral speed –time curve. If the maximum speed is limited to 65Kmph, acceleration 2.5Kmphps, and coasting and braking retardation to 0.15Kmphps and 3Kmphps respectively. Determine duration of acceleration, coasting and braking periods.

6) List the various track electrification methods employed in INDIA with their relative merits and demerits..