MODEL PAPER – FORMATIVE ASSESSMENT-1
C23-EE-505
BOARD DIPLOMA EXAMINATION, (C-23)
DEEE – FIFTH SEMESTER EXAMINATION
EE-505 : ELECTRICAL UTILIZATION AND TRACTION

Time: 90 Minutes Total marks: 40

PART-A (1X4) + (4X3) = 16 M

Instructions:
i. Answer all five questions.
ii. First question carries four marks and remaining each question carries three marks.
iii. Answers should be brief and straight to the point and shall not exceed five simple sentences

1. i) State any Two power consuming device in day to day life.
   ii) The luminous efficiency of fluorescent lamp is _____.
   iii) The commercial name of Nickel chromium is _____.
   iv) Life span of LED lamps is _____. (C01, C02, CO3)
2. Define utilization factor. CO1
3. List any three requirements of good lighting. CO1
4. List any three advantages of electric heating. CO2
5. List any three industrial applications of Dielectric heating. CO2

PART-B (3X8) = 24 M

Instructions:
i. Answer all three questions.
ii. Each question carries eight marks.
iii. The answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.

6. (a) State and explain Lamberts cosine law. CO1

   (OR)

   (b) In a street lighting scheme, lamps with candle power of 500 are hung at a height of 5 meters. The distance between the posts is 10 meters. Determine the illumination (i) under the lamps and (ii) at the midpoint between the posts. CO1

7. (a) Explain Indirect resistance heating with legible sketch. CO2

   (OR)

   (b) Explain Direct ARC furnace with legible sketch. CO2

8. (a) Explain in detail about automatic temperature control with block diagram. CO3

   (OR)

   (b) Explain in detail about automatic illumination control circuit using light dependent resistor (LDR) CO3

MODEL PAPER – FORMATIVE ASSESSMENT-2
C23-EE-505
BOARD DIPLOMA EXAMINATION, (C-23)
DEEE – FIFTH SEMESTER EXAMINATION
EE-505 : ELECTRICAL UTILIZATION AND TRACTION

Time: 90 Minutes Total marks: 40

PART-A (1X4) + (4X3) = 16 M

Instructions:
i. Answer all five questions.
ii. First question carries four marks and remaining each question carries three marks.
iii. Answers should be brief and straight to the point and shall not exceed five simple sentences

1. (a) The abbreviation for LED in LED lamps is _____. CO3
   (b) Define Tractive Effort CO4
   (c) The shunt motors are not suitable for parallel operation.(True/False) CO4
   (d) The circuit breakers used in traction are transformer circuit breaker and ____CO5
2. List the any three advantages of LED lamps over other types of lamps. CO3
3. Define schedule speed. CO4
4. List the factors affecting the coefficient of adhesion. CO4
5. State the requirements of train lighting system. CO5

PART-B (3X8) = 24 M

Instructions:
i. Answer all three questions ii. Each question carries eight marks.
iii. The answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.

6.(a) Derive an expression for maximum speed, acceleration and retardation for Trapezoidal speed time curve. CO4

(OR)

(b) A train weighing 120 tonnes is to be driven up on an incline of 2 percent at a speed of 36 kmph.If the train resistance at this speed is 2 kg per tonne.Find the current required at 1500 V dc if the efficiency of the motors and gearing is 88 percent.If the current were cut off,how long would the train take to come to rest. CO4

7. (a) Explain in detail the speed time curve for Main line service. CO4

(OR)

(b) A electric train has an average speed of 42 kmph on a level track between two stops 1400m apart.It is accelerated at 1.7 kmphps and is braked at 3.3 kmphps. Draw the speed time curve for the run. CO4

8. (a) Explain Head on Generation with legible sketch. CO5

(OR)

(b) Describe the following equipments at traction substation: a) circuit breaker, b) Interrupter. CO5

C23-EE-505

SUMMATIVE ASSESSMENT
BOARD DIPLOMA EXAMINATION, (C-23)
MODEL QUESTION PAPER
DEEE - FIFTH SEMESTER EXAMINATION
ELECTRICAL UTILIZATION AND TRACTION

Time: 3 hours **Total Marks : 80**

PART-A **10 X 3 = 30M**

Instructions:

(i) Answer all questions.
(ii) Each question carries three marks.
(iii) Answer should be brief and straight to the point and shall not exceed five simple sentences.

1. Define a) Luminous Intensity and b) candle power	CO1
2. State the requirements of good lighting.	CO1
3. List the various materials required for electric heating.	CO2
4. Mention any three industrial applications of Dielectric heating	CO2
5. List the applications of direct arc furnaces in industry	CO2
6. Compare LED lamps with tungsten filament lamps	CO3
7. List out the factors effecting specific energy consumption	CO4
8. Define 'Coefficient of adhesion'	CO4
9. State the need for Booster Transformer	CO4
10. Mention the requirements of railway coach air conditioning	CO5

PART-B **5 X 10 = 50M**

Instructions:

(i) Answer any five questions.
(ii) Each question carries Ten marks.
(iii) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

11. a) State the laws of Illumination 4M
    b) A hall 50 m × 30 m is to be illuminated by 40 W double tube fluorescent fitting. Find the number of fittings to give a uniform Illumination of 80 lux. Take the efficiency of the lamps as 40 lumen per watt and utilization factor as 0·5. 6M CO1
12. Two lamps luminous intensity 150 candela and 200 candela are mounted at 10m and 15m respectively. The horizontal distance between the lamp posts is 30m. Calculate the illumination in the middle of the post. CO1
13. Explain Indirect type of electric arc furnace with legible sketches CO2
14. a) state the need of Power saving devices 4M
    b) Explain the operating principle of LED lamp 6M CO3
15 Describe different methods of track electrification CO4
16. An electric train has an average speed of 42 kmph on a level track between stops 1400 m apart. It is accelerated at 1·7 kmphps and it is braked at 3·3 kmphps. Draw the speed-time curve for the run. Estimate the energy consumption at the axis of the train per tonne per km. Tractive resistance constant is 50 Newton's per tonne and rotational inertia is 10%. CO4

17. Explain End on Generation with legible sketches CO5

18. a) A factory 33*13 mtr. is to be illuminated with an average illumination of 72 lumen/m2 by 200 watt lamps. The coefficient of utilization is 0.4 and the depreciation factor is 1.4. Calculate the no. of lamps required. The lumens output of 200 W lamps is 2730 lumens. 5M CO2

b) State the importance of location and spacing of substations 5M CO5

MATLAB PRACTRICE LABORATORY

Course code	Course Title	No. of periods /week	Total No. of periods	Marks for FA	Marks for SA
EE-506	MATLAB PRACTRICE LABORATORY	3	45	20	80

PLC AND SCADA LABORATORY

Course code	Course title	No. Of periods/week	Total No. of periods	Marks for FA	Marks for SA
EE-507	PLC and SCADA LABORATORY	3	45	40	60