

R16

Code No: 138FB

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year II Semester Examinations, July - 2021

UTILIZATION OF ELECTRIC POWER

(Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 75

Answer any Five Questions
All Questions Carry Equal Marks

1. What is an electric drive? Explain different types? What are the advantages and disadvantages of each type? [15]
- 2.a) Describe the selection of different D.C motors for various drives.
b) Explain the advantages and applications of dielectric heating. [8+7]
3. Explain the operation of the core-less induction furnace and its advantages in metallurgical process. [15]
- 4.a) Discuss the fundamentals of DC arc welding?
b) Explain the advantages of coated electrodes in welding process. [8+7]
- 5.a) Explain the laws of illumination.
b) Describe with a neat sketch, the principle of operation of a fluorescent lamp. Mention the function of each component. [6+9]
- 6.a) Define the following:
i) Solid angle ii) luminous efficiency iii) M.S.C.P and iv) M.H.C.P.
b) An incandescent lamp hangs from the ceiling of a room. The illumination below the lamp vertically downwards is 100 lux. When the illumination is measured at a distance of 3 m from the vertical from the ceiling, its value is 50 lux. Find the candle power of the lamp and its vertical distance from the floor. [8+7]
- 7.a) What is electric braking? State different electric braking methods.
b) Two stations A and B are 15 Km apart and the average speed of the train is 65 Kmph. The acceleration is 6 Kmphps, retardation during coasting is 0.4 Kmphps and braking is 6Kmphps respectively. Taking quadrilateral approximation of speed- time curve, determine the duration of the accelerating, coasting and barking periods and distance covered during these periods. [7+8]
8. Obtain an expression for specific energy consumption of a train movement on a track. Explain the various factors affecting it? [15]

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