

Code No: 157CB

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**B. Tech IV Year I Semester Examinations, January/February - 2023****INDUSTRIAL ELECTRICAL SYSTEMS****(Electrical and Electronics Engineering)****Time: 3 Hours****Max.Marks:75****Note:** i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A**(25 Marks)**

- 1.a) Distinguish in detail about the Pendant holder and batten holder [2]
- b) What is electric shock? How to protect a person from it? [3]
- c) How do you calculate the rating of a main switch? [2]
- d) List the advantages of casing and capping wiring used in residential buildings. [3]
- e) Define the term Depreciation factor. [2]
- f) Explain the laws of illumination. [3]
- g) List the various equipment required in a substation. [2]
- h) List and explain the various harmful effects of lightning. [3]
- i) What is a MCC panel and explain its significance? [2]
- j) What do you understand by the term Battery sizing? [3]

PART – B**(50 Marks)**

- 2.a) Explain in detail about the Miniature Circuit breaker and also give its uses.
- b) What is Concealed wiring and list its advantages and disadvantages? [6+4]

OR

- 3.a) Define the term Electric Hazard and explain the points to be remembered for working safely around electrical equipment.
- b) What is the main aim of using Motor Protection Circuit Breaker (MPCB) and explain its working with a neat diagram. [6+4]

- 4.a) Explain in detail about batten Wiring and list its advantages and disadvantages.
- b) Explain the arrangement of installation components in a consumer's premises of industrial type. [5+5]

OR

- 5.a) Explain the various methods of different earthing arrangements.
- b) Explain the features that are considered for Fuse / Circuit breaker selection scheme. [6+4]

6. Explain the following terms:
a) Luminous Flux b) Plane angle
c) Candle power d) Illumination e) Lux or meter candle. [10]

OR

- 7.a) List and explain the various types of Lighting schemes.
b) The illumination at a point on a working plane directly below the lamp is to be 100 lumens/m². The lamp gives 150 CP uniformly below the horizontal plane. Determine: i) The height at which lamp is suspended. ii) The illumination at a point on the working plane 2.8 m away from the vertical axis of the lamp. [6+4]

- 8.a) Explain the Single bus bar arrangement in a substation with a neat diagram.
b) Explain the various types of lightning strokes with respect to consideration on overhead lines, towers and substations etc. [5+5]

OR

- 9.a) Explain in detail about the Direct on line starting for a Induction motor with a neat connection diagram.
b) List the various specifications that need to be considered for LT breakers. [5+5]

- 10.a) Explain in detail about the working of UPS.
b) Explain the various information that is required for sizing of battery. [6+4]

OR

11. Explain various auxiliaries that are required apart from a diesel – generator set in a Diesel Power station. [10]

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