

**April 2018**

*Time – Three hours  
(Maximum Marks: 75)*

*[N.B: (1) Q.No. 8 in PART – A and Q.No. 16 in PART – B are compulsory.  
Answer any FOUR questions from the remaining in each PART – A  
and PART – B*

*(2) Answer division (a) or division (b) of each question in PART – C.*

*(3) Each question carries 2 marks in PART – A, 3 marks in Part – B and  
10 marks in PART – C. ]*

**PART – A**

1. What is sub-station?
2. What are the advantages of ring mains system?
3. Write a note on group drive.
4. Select a motor for crane application and justify.
5. Mention the system of track electrification.
6. Define luminous flux.
7. Mention the modes of heat transfer.
8. What is regenerative braking?

**PART – B**

9. What is the purpose of using instrument transformer in sub-stations?
10. Mention the advantages of electric drive.
11. What do you understand by the term tractive effort?
12. What are the requirements of good lighting system?
13. Write note on flood lighting.
14. Classify electric heating system.
15. Mention the factors to be considered while preparing work for welding.
16. With simple sketch explain radial system of distribution.

[Turn over.....

PART - C

17. (a) Draw the layout of 110/11kV sub-station and give a note on important equipments in it.  
(Or)
- (b) What will happen if neutral is disconnected in a 3 $\phi$  four wire system? Illustrate with an example.
18. (a) Explain any four classes of duty cycles.  
(Or)
- (b) What are the features of good braking system? Explain dynamic braking as applied to cage type induction motor.
19. (a) With simple sketches explain the two types of over head current collectors of electric traction.  
(Or)
- (b) Explain shunt transition method of series-parallel transition.
20. (a) Draw the constructional diagram of sodium vapour lamp and explain its operation.  
(Or)
- (b) Explain the two laws of illumination with simple sketches.
21. (a) Explain the principle of eddy current and dielectric heating methods with simple sketches.  
(Or)
- (b) With simple diagram explain the working of ultrasonic welding system.
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