Register No.:

294

October 2017

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.

(4) Cost of materials may be assumed suitably, if necessary.

(5) Electrical estimation tables may be permitted.]

PART – A

1. Draw the symbols of (a) UG cable (b) Earth.
2. State the methods of improving earth resistance.
3. For 10A current which size of aluminium cable can be selected for single phase?
4. Convert 15HP into watts.
5. State the necessity for energy audit.
6. What is energy performance?
7. What is meant by energy efficient motor?
8. What is electronic ballast?

PART – B

9. State the IE rule for declared voltage of supply to consumer.
10. State the difference between neutral and earth wire.
11. Write the steps to be followed in preparing the electrical estimate.
12. State any three general requirements of residential electrical installations.
13. Write briefly about energy substitution.
14. Write briefly about the losses in transformer.
15. Discuss the choice of lighting.
16. What is occupancy sensor?

PART – C

17. (a) Explain with neat sketch pipe earthing and plate earthing.

(Or)

(b) Discuss (i) Effects of electric shock (ii) Treatment for electric shock.

18. (a) A workshop of size 10m x 15m is to be installed with a squirrel cage induction motor of 3Φ, 15HP. Estimate the materials required for the work. Assume surface metal conduit wiring and necessary data as per the IE rule.

(Or)

(b) Estimate the quantity of materials required for wiring a computer centre of size 10m x 6m x 3m height having the following electrical load.
Number of computer system=10; Number of tube lights=10; Number of fans=5; Window model a/c unit 1.5 ton=2; Number of scanner=1; Number of printer=1; UPS (5kVA)=1.

19. (a) Write in detail about (i) Maximizing system efficiency (ii) Energy audit instruments.

(Or)

(b) Discuss (i) Electrical load management (ii) Performance assessment of PF capacitor.

20. (a) Discuss the factors affecting the motor performance.

(Or)

(b) Write in detail about the energy conservation avenues in lighting system.

21. (a) Explain:
(i) The factors affecting the selection of diesel generating system.
(ii) Energy efficient lighting control.

(Or)

(b) Write about (i) Soft starter with energy saver (ii) Energy efficient transformers.
