

Total No. of printed pages = 8

**END SEMESTER REGULAR / RETEST
EXAMINATION, JULY – 2023**

Branch : (Electrical)

Semester : 6th (New/Old)

Subject Code : EI – 604

**INSTALLATION AND MAINTENANCE OF
ELECTRICAL EQUIPMENTS**

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks
for the questions.

Instruction :

- *All* questions of PART – A and PART – B are compulsory.

PART – A

Marks – 25

1. Choose the correct answers : $1 \times 10 = 10$
- (a) The main methods of lifting of electrical machines are
- (i) pulley blocks (ii) chain hoists
(iii) overhead cranes (iv) All of these

[Turn over

(b) The safety of electrical appliances and wiring is ensured by

- (i) insulation.
- (ii) earthing
- (iii) providing a fuse wire in the electric circuit
- (iv) All of the above

(c) The range of medium resistance is

- (i) 1 to 10 ohm
- (ii) 1 to 100 ohm
- (iii) 1 to 1000 ohm
- (iv) 1 to 100000 ohm

(d) Corrective maintenance is needed when

- (i) Equipments fail
- (ii) Equipments producing noise
- (iii) Equipments running effecting other standby equipments
- (iv) None of the above

(e) The material used in pipe earthing is

- (i) Sodium chloride
- (ii) Charcoal-salt
- (iii) Copper sulphate
- (iv) Silica Sand

(f) Inside the earth or pit, the earthing electrode should be placed

- (i) horizontally
- (ii) inclined at 45°
- (iii) vertically
- (iv) in any position

(g) The Insulation resistance test is performed on power line with

- (i) Ohmmeter
- (ii) Earth tester
- (iii) Meggar
- (iv) Potential transformer

(h) Which of the following mixture is preferred for filling around the earth electrode for having effective earthing?

- (i) Coal-salt mixture
- (ii) Lime-sand mixture
- (iii) Sawdust-sand mixture
- (iv) All of the above

(i) Painful electric shock is felt when magnitude of current passing through human body is

- (i) less than 1 milliamp
- (ii) from 1 to 8 milliamp
- (iii) from 8 to 15 milliamp
- (iv) from 15 to 50 milliamp

(j) In order to determine the suitability of transformer oil, tests carried out are

- (i) Breakdown test (ii) Acidity test
- (iii) Crackle test (iv) All of these.

2. Fill in the blanks with appropriate words :

$$1 \times 10 = 10$$

- (a) Motors are tested for _____ before commissioning.
- (b) A good instrument for testing ground resistance is _____.
- (c) The colour of fresh dielectric oil used in transformer is _____.
- (d) Sight test is done to check the _____.

(e) Dry powder extinguisher is used for extinguishing the fire of Class B or C

(f) Preventive maintenance is carried out to reduce the failure of equipment to minimum.

(g) Overhaul is done for replacement of the parts of an electrical equipment.

(h) For holding, twisting or cutting wires Pliers tools are used.

(i) A dirt free, moisture free machine should have polarization index 2 or 2.0.

(j) When the current is felt by touching the metal body of any appliance, faults are known as electric shock.

3. Write True or False : 1 × 5 = 5

(a) Test lamp is used to find out the polarity of wire.

(b) An close circuit is a break in the continuity of the circuit.

(c) Breakdown maintenance is carried out daily.

(d) The type of oil which is suitable as transformer oil is grade B mineral oil.

(e) Electric shocks are received when the neutral wire comes in contact with earth wire.

PART - B

Marks - 45

4. Where are the following tools used in electrical installation work ? 2
- (a) Chisel (b) Blow lamp
(c) Poker (d) Screw driver.
5. (a) Why grouting is necessary ? 2
- (b) Write general guidelines for loading and unloading of heavy electrical machine. 4
6. (a) Write the tests for domestic installation before commissioning. 2
- (b) State the operational steps involved in installation of electric machine. 4

7. (a) Draw the diagram of plate earthing and explain it. 2+3=5

Or

Describe the points to be considered at the time of installation of earthing. 5

8. (a) Why dehydration and filtration of transformer oil is important ? 2
- (b) Write six properties of good insulating. 3
- (c) (i) What are the reasons for deterioration of insulating oil ? Explain. 4

Or

- (ii) Discuss the various tests that should be carried out to determine the suitability of the insulating oil. 4

9. (a) What are the different types of maintenance ? 2
- (b) Write two advantages of preventive maintenance. 2
- (c) (i) Describe the preventive maintenance of distribution transformer. 5

Or

- (ii) Write the maintenance schedule of Circuit Breaker. 5

10. (a) State the faults, their causes and remedies of a D.C motor. 4

Or

(b) State the four common faults in domestic electrical appliances. 4

11. What do you mean by electric shock ? What are the effects of electric shocks ? 4