UNIT- I – EARTHING ARRANGEMENTS, SAFE WORKING ON ELECTRICAL EQUIBMENT, BUILDING ELECTRICAL INSTALLATIONS

PART-A & PART-B QUESTIONS

1. What is the essential procedure for shutdown? Who is the authorized person to effect shutdown? **(APR-18)**
2. What are the different types of fire extinguishers? **(APR-18)**
3. What is equipment earthing? **(APR-18)**
4. What are the main points to be checked during the annual inspection of electrical installation? **(APR-18)**
5. What is the essential procedure for shut down? Who is the authorized person to effect shutdown? **(APR-18)**
6. Name the types of fire extinguishers. **(APR-18)**
7. What are the methods used to measure the earth resistance?
8. State the advantage of earth loop tester.
9. What are the factors the earth resistance depends on?
10. Name the some examples of competency certificates.
11. State the methods of earth leakage protection.
12. Who is authorized person?
13. What are the common types of testing devices used in electrical installation?
14. Name the instrument used to measure the insulation resistance.
15. What action will take place if fire occurs in electrical equipments?
16. Explain the operation of soda acid type fire extinguishers.
17. Explain the operation of chemical fan type fire extinguishers.
18. Explain the operation of carbon-tetro-chloride fire extinguishers.

PART-C QUESTIONS

1. What are the points to be checked in switches and fuses in electrical installations? **(APR-18)**
2. Describe two types of earth leakage protection (ELCB)? Explain both types with neat diagram. **(APR-18)**
3. Explain in details about the points to be checked in earthing arrangements.
4. Explain in details about earthing procedure.
5. Explain how to measure the earth resistance by using voltmeter and ammeter method?
6. Explain the measurement of earth resistance by using megger earth tester.
7. Explain the measurement of earth resistance by using ohm meter.
8. Explain the measurement of earth resistance by using earth loop tester.
9. Explain what action should be taken to reduce earth resistance?
10. Explain in details about authorized person working on electrical installations.
11. Explain the procedure for electrical shutdown.
12. Explain the common types of testing devices used in electrical installations.
13. Explain special shutdown precautions should be taken in substations and power houses.
14. How to measure the insulation resistance by using megger?
15. What are the points to be inspected in portable equipments in electrical installations?
16. Explain the operation of different types of fire extinguishers.

UNIT- II – OPERATION AND MAINTENANCE OF TRANSFORMER

PART-A & PART-B QUESTIONS

1. What is transformer noise? Why it is caused? How it can be reduced? **(APR-18)**
2. Why drying out is necessary in power transformer? **(APR-18)**
3. What is meant by magneto striction?
4. Which instrument is used to measure insulation resistance?
5. What will be the insulation resistance for each 1000V of operating voltage, when the transformer is hot at 60^0 C?
6. State the conditions for parallel operations transformer.
7. Write short notes on inrush current.
8. What is meant by insulation co-ordination?
9. State the different types of installations.
10. What actions to be taken while the transformer oil rises unduly?

PART-C QUESTIONS

1. Explain the drying out methods used in transformer. **(APR-18)**
2. Write about daily, monthly and annual maintenance taken on power transformer. **(APR-18)**
3. Explain in details the forces generated in transformer during short circuit.
4. Explain the causes of noise developed in transformer.
5. Explain the reason for temperature rise in transformer.
6. How is the insulation resistance of transformer measured?
7. Describe the precautions required for paralleling of two transformers.
8. Why current inrush does takes place and what is the remedy?
9. Explain in detail about insulation co-ordination.
10. Explain the effect of insulation during star point earthing.
11. What actions to be taken while transformer oil rises unduly?
12. Explain the points to be checked if the oil level tends to fall down.
13. Explain the attention required on bushings and insulators.

UNIT- III – OPERATION & MAINTENANCE OF GENERATORS, SUBSTAIONS AND CIRCUIT BREAKERS

PART-A & PART-B QUESTIONS

1. What are the conditions to be satisfied for parallel operation of alternator? **(APR-18)**
2. What is meant by an auto reclose breaker? **(APR-18)**
3. What are the possible defects occur for the generator failure to buildup voltage? **(APR-18)**
4. What is the difference between isolator and circuit breaker? **(APR-18)**
5. Write the short notes on automatic voltage regulator role.
6. Why automatic voltage regulators are provided in the alternator?
7. What are the possible defects occur for the generator failure to buildup voltage?
8. What are the causes of instability in alternators?
9. What is cyclic speed irregularity?
10. What are the indicating and protecting equipments provided on the alternator panel?
11. What are the causes of overheating of armature and field windings of alternators?
12. What are the indicating instruments provided on the alternator panel?
13. What are the protective equipments provided on alternating panel?
14. What are the causes for circulating current between the alternators running in parallel?
15. What is the cause of pitting of alternator bearing?
16. What is rupturing capacity of a circuit breaker?
17. What is meant by inverse time overload relay?
18. Write short notes on fault clearance time of the circuit breakers.

PART-C QUESTIONS

1. Explain the procedure to ensure proper operation of the circuit breaker in the event of the fault. **(APR-18)**
2. What are the causes for overheating of armature and field winding of alternator? **(APR-18)**
3. What are the causes for circulating current between alternators in parallel? **(APR-18)**
4. Explain the special precautions necessary for parallel operation of alternators.
5. Explain the operation of AVR.
6. What are the possible defects occur for the generator to buildup voltage?
7. Explain the reverse current protection and why it is necessary.
8. Explain in details about the rupturing capacity of the circuit breaker.
9. How do calculate the short circuit level at any point on a distribution system?
10. Explain for what conditions circuit breaker can be arranged to trib.
11. Explain the operation of auto reclose circuit breaker.
12. What are the maintenances required for oil circuit breakers?
13. What are the maintenances attentions required for the contacts of the contactor?
14. What are the maintenances required on SF6 circuit breaker?

UNIT- III – OPERATION & MAINTENANCE OF AC MOTORS AND STARTERS

PART-A & PART-B QUESTIONS

1. State the types of enclosures used in motors. **(APR-18)**
2. What are the effects when one phase blows off when three phase induction motor is running? What precautionary equipment is available for this? **(APR-18)**
3. What are the main points to be attend during periodical maintenance of electrical motors? **(APR-18)**
4. How to change the direction of rotation of three phase induction motor?
5. How to change the direction of single phase motor?
6. What is single phasing?
7. What is meant by ambient temperature?
8. What is the permissible of overload which a motor can with stand?
9. What are the different classifications of insulation?
10. What are the protective devices used in motor starters?
11. What are the usual indicating devices provide on the starters?
12. What are the roles of relay in motor?
13. What are the control devices used in motor?
14. State the usage of ball and roller bearings.
15. Name the device used for measuring the air gap in motor.
16. What are the types of balancing used in motors?
17. Why drying out is necessary in motors?

PART-C QUESTIONS

1. Explain the function of thermal overload release and low volt release. What action to be taken if overload mechanism trips frequently? **(APR-18)**
2. Explain the significance of balancing of rotor. How balancing is achieved? **(APR-18)**
3. Explain the operation of single phase preventer.
4. Explain various types of enclosures used in electric motors.
5. How does the ambient temperature affect the temperature rise of the motor?
6. What action will be taken if an overload mechanism trips frequently?
7. Explain the different types of control devices used in motor?
8. What are the main points to be attended during periodical maintenance of motors?
9. Explain how the air gap is measured in motors?
10. Explain in details the precautions require in fitting bearings.
11. Explain in details the problems occurring in bearings.
12. How do check the alignment of direct coupled motors.
13. Explain static balancing?
14. Explain dynamic balancing?
15. What are the causes of low insulation resistance of electrical equipment?
16. Explain in details the different types of drying out methods used in motors.
17. What are the steps to be taken if a motor is unduly hot?
18. Explain in detail vacuum impregnation applied in motors.
19. Explain how the starters are selected for high and low starting torque applications?

UNIT- V – OPERATION & MAINTENANCE OF LIGHTING, TRANSMISSION AND DISTRIBUTION

PART-A & PART-B QUESTIONS:

1. What is stroboscopic effect in fluorescent lighting? **(APR-18)**
2. What are the symptoms to identify the end of the useful life of the lamp? **(APR-18)**
3. What is the permissible limit for variation of voltage and frequency as per IS standard? **(APR-18)**
4. What is glare?
5. What is the maximum permissible limit of variation of voltage of electric supply?
6. What is the maximum variation permitted in the frequency?
7. Define factor of safety.
8. Name the different types of safety devices used in over head lines.
9. What are the advantages of steel cored aluminum conductors (ACSR)?
10. What are the disadvantages of steel cored aluminum conductors?
11. What is meant by insulation level?
12. Define insulation co-ordination.
13. What is the maximum permissible limit of variation of the voltage of electric supply?
14. What is the maximum variation permitted in the frequency?
15. Define factor of safety.
16. What are the advantages of steel cored aluminum conductors?
17. What are the disadvantages of steel cored aluminum conductors?

PART-C QUESTIONS

1. Describe the various steps in designing a lighting installation. **(APR-18)**
2. How o identify cable fault location? Explain any two methods. **(APR-18)**
3. What is glare and how it is avoided?
4. What is meant by stroboscopic effect and how it can be reduced?
5. Explain in detail the troubles occur in fluorescent lamp and how it can be rectify them?
6. Explain the different methods of controlling street lighting.
7. What are the precautions necessary in erecting lighting installation?
8. Explain how the fluorescent lamps are disposed?
9. Explain the causes of lowering of illumination level.
10. Explain about the safety devices used in overhead lines.
11. Explain about minimum clearance between conductors and building.
12. What are the advantages and disadvantages of ACSR conductors?
13. Explain the purpose of continuous earth wire used in over head lines.
14. Explain the points to be checked when carrying out inspection in over head transmission lines.
15. Explain the action should be taken to prevent rusting of steel post.
16. Explain the protection required for transmission line.
17. Explain the insulation level and insulation co-ordination.
18. Explain the precautions required in erecting UG cable.
19. Explain the causes of failure of UG cable.
20. If a cable develops a fault, how will you proceed to locate it?
21. Describe the fall of potential method to locate the fault in the cable.
22. Describe the murray loop test method to locate the fault in the cable.
23. How will you locate the position of discontinuity of one of the cable?