

JK LAKSHMIPAT UNIVERSITY, JAIPUR

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End Term Examination (Regular), Nov.-Dec. 2015

B. Tech in Electrical Engineering, Semester VII

Roll No.....

COURSE CODE: EE722

Time: 3 hours

Max. Marks: 100

COURSE TITLE: Electrical Installation, Commissioning & Maintenance

Instructions to students:

1. Do not write anything other than your roll number on question paper.
 2. Assume suitable data wherever required and mention it clearly.
 3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.
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Q.1A Objective type multiple choice questions (10 questions @ 1 mark) 10

- i. A theodolite is often designated by
 - (a) diameter of the objective lens
 - (b) diameter of the eye piece lens
 - (c) diameter of the horizontal circle
 - (d) length of the telescope
- ii. What is Marshalling Kiosk in power transformer:
 - (a) It provides alarms, trips, controls and indications from main transformer
 - (b) It is the base on which transformer rail is provided to pull and push transformer
 - (c) It is the pressure device ruptures when temperature inside transformer increases
 - (d) None of the above
- iii. Disaster Management plan must meet the following objective
 - (a) Contingency
 - (b) Optimum use of resources
 - (c) Response Time
 - (d) All above
- iv. The excessive temperature rise in the Transformer causes maximum damage to
 - (a) Winding insulation
 - (b) Core laminations
 - (c) Copper wiring
 - (d) Dielectric strength of the oil
- v. Stones are provided in the substation to:
 - (a) To avoid fire accident by draining oil from transformer if leaks
 - (b) To avoid growing of weeds and plants
 - (c) To provide insulation
 - (d) All the above
- vi. Step potential and Touch potential is associated with:
 - (a) High voltage transmission
 - (b) Earthing of the substation
 - (c) Voltage rise in the substation
 - (d) Communication systems
- vii. When earth fault occurs:
 - (a) voltage potential at the earth mat increases due to grounding
 - (b) voltage potential at the earth mat decreases due to grounding
 - (c) voltage potential at the earth mat remains zero irrespective of fault
 - (d) none of the above
- viii. A face-left or normal position of observation means
 - (a) the vertical circle of the instrument is on the left of the observer

- (b) the vertical circle is on the right side of the observer
 (c) the station being observed is to the left of the observer
 (d) the left side vernier is read for the angle value
- ix. Predictive maintenance involves
 (a) Performing maintenance activities in a consistent, predictable manner
 (b) Performing maintenance on a regular, predictable schedule so workers know when to expect it.
 (c) Determining the best time to perform preventive maintenance on equipment
 (d) none of the above
- x. Noise level test conducted on a transformer is a
 (a) special test (b) routine test (c) type test (d) none of these
- Q.2 Short answer type questions (4 questions @ 2.5 marks) 10
- i. Differentiate between equipment earthing and system grounding
 ii. State various internal and external faults that occur in electrical equipment
 iii. What is the Polarization index value
 iv. Explain creep age distance for insulator
- Q.3A Why perform preventive maintenance on electrical systems and write-down ten 05
 general annual checks for maintenance of electrical systems
- Q.3B Explain necessity of earthing and discuss three point and four point method 05
 employed for earth resistance measurement.
- Q.4A Write down specification for following items. 05
- (i.) Fault Clear Time for 132 KV and 220 KV substation
 (ii.) Lighting Arrestor Rating for 132 KV and 220 KV rated voltage
 (iii.) Number of Disc Insulator for 132 KV and 220 KV rated voltage
 (iv.) Ground Clearance for 132 KV and 220 KV rated voltage
 (v.) Earthing Resistance Value for 33KV Sub Station and 400KV Sub Station
 (vi.) % Impedance for 2.5MVA To 5MVA capacity transformer
 (vii.) Conductor material for 33 kV Main Bus
 (viii.) Ultimate tension for 33 KV and 11 KV insulators
 (ix.) Current rating for squirrel and rabbit conductor
 (x.) SWG Size for 25 Ampere drop out fuse
- Q.4B Differentiate between surge arrester & lightning arrester 05
- Q.5A Explain the procedure of alignment of shaft of electrical machines 05
- Q.5B (i) What is difference between power transformers & distribution 05
 transformers?
 (ii) What is accuracy Class of the instrument?
 (iii) Why we ground the sheath of single core power cables and to avoid
 grounded at both the ends?
- Q.6A List out routine Tests for transformer and explain vector group test with 05
 suitable diagram.
- Q.6B List out type test on power transformer. Explain the polarity test and Voltage 05
 ratio test with the help of circuit diagram

OR

Q.6B Explain the procedure for handling, inspection, storage and installation of electrical equipment. 05

Q.7A Write down the any five Harmful Effects of air pollution 05

Q.7B Explain 10 safety precautions to avoid any fatal and non-fatal accidents 05

OR

Q.7B Write down detailed inspection & maintenance schedule for isolator /earth switch 05

Q.8 List the possible personal errors in theodolite work and the precautions that should be taken to eliminate them 10

Q.9A Write down monthly schedule for power transformer 10

Q.9B Enumerate the different parts of a theodolite and explain their function 10

OR

Q.9B Write down detailed inspection & maintenance schedule for distribution transformers 10