

**SUBJECT CODE NO:- E-64**  
**FACULTY OF ENGINEERING AND TECHNOLOGY**  
**T.E.(EEP/EE/EEE) Examination Nov/Dec 2017**  
**Testing & Maintenance of Electrical Equipment**  
**(REVISED)**

[Time: Three Hours]

[Max.Marks:80]

N.B Please check whether you have got the right question paper.  
1) Q.1 & Q.6 are compulsory  
2) Solve 3. Question from each section (i.e 2 question from remaining in each section)  
Section A

Q.1 A) Solve any three: fill in the blanks 06  
1) Type tests are carried out on ----- jobs for ----  
2) Routine tests are carried out on ----- job for ----  
3) Diagnostics tests are carried out to -----  
4) The main reason of deterioration of insulation property of transformer oil in presence of -  
----- in oil

B) Solve any two :select right answer 04  
1) Insulation in L.V & core is normally  
a) asbestos  
b) Bakelite  
c) mica  
2) The HV& LV of transformer can be identified without name plate by  
a) No. of . Turns  
b) position of coil  
c) winding conductor size  
3) Core of a transformer is normally  
a) Isolated from ground  
b) Earthed  
c) Connected to supply

Q.2 a) What is the significance of “Tensioner” used in transformer coil winding process. What fault it can develop if not working properly. explain with neat sketch 07  
b) Clearly distinguish between Direct testing of a transformer & indirect testing of transformer parameters with example 08

Q.3 a) Differentiate between three tests in view of their importance 07  
i) Type test  
ii) Routine tests  
iii) Tests on site  
b) Explain what do you mean by “Tolerance”? Giving suitable example, in view of testing? 08

- Q.4 a) Write reasons behind of following faults during operation of power transformer & how you will remove it? 08
- 1) Secondary voltage is less than required
  - 2) One side of transformer gets heated
- b) What will be the effect of blow holes in the casted body of a motor on its performance 07  
justify your answer
- Q.5 Write short notes on any three 15
- i) Magnetic im-balance in 3-Ph transformer
  - ii) Magnetic im – balance in 3 ph Induction motor
  - iii) Vibrations are excessive in power transformer
  - iv) Excessive vibration in 3- ph motor

Section – B

- Q.6 Fill in the blanks 10
- 1) The insulation used between two stampings of core of induction motor is -----
  - 2) The scratches on super enamelled coating of copper of conductor can create ----- fault
  - 3) The brushes of slip ring I.M are made up of -----
  - 4) Long form of TEFC motor uses ----- for cooling purpose
  - 5) The thumb rule says that there is ----- of moisture is present in cellulose layer insulation
- Q.7 a) Answer in 4/5 sentences 07
- i) What should be the hysteresis area of loop for motor core?
    - 1) Wide
    - 2) Narrow? justify your answer with reasons
  - ii) The motor stator core should be of which material? NGO, GRGO, HRGO or GO?
- b) If the sleeves of 1-ph . I.M are found damaged what sort of fault it can develop? Justify your answer 08
- Q.8 a) With neat sketch, explain the operation of X- ray machine used in industries? 07
- b) Why it is required to test the Acidity in transformer oil? How it will React on transformer windings insulation 08

Q.9 Explain the procedure of DGA analysis giving its 75code with proper sketches? 15

- Q.10 Write short notes on any three 15
- 1) Heathrow testing of motor
  - 2) HV with stand test on motor
  - 3) Use of E.M testing for vibration measurement
  - 4) Ultra sonic testing on transformer?