

**FACULTY OF ENGINEERING & TECHNOLOGY**  
**T.E (EEP/EE/EEE)Year Examination - June– 2015**  
**Testing &Maintenance Of Electrical Equipment**  
**(Revised )**

[Time: Three Hours]

[Max. Marks:80]

“Please check whether you have got the right question paper.”

- i) Q. No.1 and Q.No.6 are compulsory.  
 ii) Solve any two questions per section ,out of remaining four question of each section  
 iii) Assume suitable data wherever necessary.

## SECTION-A

- Q.1 a) Match the pairs 05
- |                             |                           |
|-----------------------------|---------------------------|
| i) Wrong placement of coils | A. Choking of Radiators   |
| ii) Leakage current         | B. Wedding joints crack   |
| iii) Excessive vibrations   | C. S.M. Testing           |
| iv) Leakage from tank joint | D. Magnetic Im- balance   |
| v) Transformer over heating | E. Body –winding shortcut |
- b) Write the answer in one sentence 05
- i) What do you understand, by seeing “Blue –colored silica jells in a breather of a transformer?
- ii) Transformer has total five terminal, 3-on MV side & 2-on LV side .what you will understand by looking to such Name-plate less transformer.
- iii) What can be the reason, if transformer under operation, is not able to supply with full power supply capacity; but only can supply 80% of it.
- iv) All the three winding, of a  $\lambda$  –connected transformer take 100A each .What will be the value of current pasting through neutral?
- v) There are the two wires, without marking an them .one is phase & other is neutral .How will you confirm the “phase” wire, with “Test –Lamp”?
- Q.2 a) Explain the difference between Distructive & nondestructive testing method with example. 07
- b) Explain the concept of total productive maintenance (TPM). 08
- Q.3 a) Describe the various “Reasons” behind development of faults in a transformer during manufacturing & name the equipment used to identify each reason. 08
- b) Explain the need of transformer de-hydration. 07
- Q.4 a) What will be the effect of blow holes in the body casting of motor, on its performance ? 07
- b) Explain the reasons of Bearings get jammed ,in case of 3-phase I.M.& write the remedies on it . 08
- Q.5 Write short notes on any three 15
- a) Magnetic im-balance in transformer .
- b) Magnetic im-balance in Induction maotors
- c) Vibrations in a transformer
- d) Vibrations in a motor.

## SECTION -B

- Q.6 a) Fill in the Blanks 05
- i) The insulation used between two stampings of a startor core of I.M. is -----.
- ii) The scracting of super enamel coating on a copper conductor can creat -----fault .
- iii) The Brushes of of slip ring motor are made up of -----material.
- iv) Long form of TEFC motor uses ---for its cooling purpose .
- v) The trumb rule says that there is---% moisture present in cellulose paper insulation .

- b) Choose the correct answer : 05
- i) Motor core material has hysteresis loop with loop area /width : A) Narrow B)Wide  
C)Both D)None of these
  - ii) The motor stator core material is , A) NGO B)GO C) HRGO D) CRGO.
  - iii) For vibration measurement ,the equipment used is A) Megger B) Sonography C) X-ray  
D) E.M.Swing
  - iv) HV with sand test ,gives us  
A) Break down voltage of equipment B) Maximum voltage of equipment C)Surge  
voltage D) Voltage the equipment can sustend with .
  - v) Which of the following comes under Radiography ?  
A) Ultra sonic M/C B) S.M.Swing M/C C) x-ray M/C D) None of these.
- Q.7 a) How you will predict the winding to winding short CKt fault in a 3-pl I.M. Explain the procedure . 07  
b) If the sleeve on the terminal conductor is damaged . What sort of faults it can develop in 1-ph I.M. 08
- Q.8 a) With neat sketch & Diagram ,Explain opartion of x-ray machine used in Industries 08  
b) Why it is required to test “Acidity “of a transformer oil? How it will have an impact on transformer ? 07
- Q.9 Explain the procedure of DGA analysis with proper sketches. 15
- Q.10 Write short notes on (any three ) 15
- a) Heat run testing
  - b) HV with stand test on transformer
  - c) Use of ultra sonic testing for electrical equipment
  - d) E.M .swinging Graph machine for vibration measurement