Q.1 Attempt any Five of the following.  

10 Marks  
a) List out four different fire extinguishers.  
b) Explain the need of maintenance of electrical equipment.  
c) Explain predictive maintenance.  
d) List the different methods of testing of electrical equipment.  
e) List any four properties of transformer oil.  
f) List out eight different tools used in electrical maintenance.  
g) List the different methods of drying of insulation.  

Q.2 Attempt any Three of the following.  

12 Marks  
a) Explain the sequence followed in operating any one type of fire extinguisher.  
b) Write the internal causes of failure of electrical equipment.  
c) Explain the need and steps to conduct the reduced voltage running up test on the three phase induction motor.  
d) Draw neat diagram of the foundation used for floor mounted transformer.  

Q.3) Attempt any Three of the following.  

12 Marks  
a) Differentiate between installation earthing and system earthing.  
b) Explain the importance of the preventive maintenance schedule.  
c) Explain moisture proofness test conducted on single phase induction motor.  
d) Prepare the troubleshooting chart (probable reasons and remedies) for three phase transformer for the following symptoms  
i) no output voltage,  
ii) transformer oil overheats,
Q.4) Attempt any Three of the following. (12 Marks)
   a) List any four activities that are to be carried out for rescuing a person who has received an electric shock.
   b) Explain the significance of open circuit voltage ratio test on three phase slip induction motor.
   c) Explain neat diagrams and expressions open delta method of testing of transformers.
   d) State factors affecting the life of insulating materials.
   e) Explain with neat diagram the impulse test on a power transformer.

Q.5) Attempt any Two of the following. (12 Marks)
   a) State factors involved in designing a machine foundation.
   b) Explain with neat circuit diagrams the procedures to perform no load and blocked rotor tests on three phase induction motor.
   c) Prepare the preventive maintenance schedule for three phase induction motor over one year.

Q.6) Attempt any Two of the following. (12 Marks)
   a) Explain with diagrams the synchronous impedance method of finding regulation of alternator.
   b) Explain the steps to determine the efficiency and regulation from the results of the back to back test on single phase transformer with neat diagrams if needed.
   c) Draw and explain vacuum impregnation method of varnishing.
‘I’ Scheme
Progressive Test– I Sample Question Paper

Program Name : Electrical Engineering Program Group
Program Code  : EE/EP/EU
Semester      : Sixth
Course Title  : Maintenance of Electrical Equipment
Max. Marks    : 20

Instructions:
(1) All questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Sub-questions in a main question carry equal marks.
(5) Assume suitable data if necessary.
(6) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR. (08 Marks)
a. Define the following term
   1) Safety 2) Hazard
b. State the objectives of testing of electric machine.
c. State the factors on which severity of electric shock depends.
d. State the need of earthing for electrical equipment.
e. State the tolerance limits for the following:
   1) No load current for single phase transformer
   2) Speed for three phase induction motor
f. Define routine maintenance and breakdown maintenance.

Q.2 Attempt any THREE. (12 Marks)
a. State any four objectives of preventive maintenance of electrical equipment.
b. Compare direct test and indirect test on electrical machines.
c. Enlist any four precautions to be taken while working on electrical installation.
d. State the causes of fire due to electrical reasons.
e. List out any four activities that are done during preventive maintenance of induction motor
‘I’ Scheme

Progressive Test– II Sample Paper

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<tr>
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Time: 1 Hour

Instructions:
(1) All questions are compulsory.
(2) Illustrate your answers with neat sketches wherever necessary.
(3) Figures to the right indicate full marks.
(4) Sub-questions in a main question carry equal marks.
(5) Assume suitable data if necessary.
(6) Preferably, write the answers in sequential order.

Q.1 Attempt any FOUR. (8 Marks)

a. State the functions of following tools of electrical maintenance
   (i) Dial Indicator  (ii) Growler
b. State two electrical faults in electrical machine.
c. Define Polarization index. State its value for class A and class B insulating material.
d. State the effects of misalignment on direct coupled drives.
e. List the agents which contaminate the insulating oil.
f. Define Dielectric Strength for transformer oil. State its value for new transformer oil.

Q.2 Attempt any THREE. (12 Marks)

a. State how to protect an electrical machine during its inactivity.
b. Explain the troubleshooting chart for three phase transformer for the following,
   i) transformer overheats,
   ii) excessive humming noise near it,
   iii) overload relay operated and
   iv) primary side fuses blow off
c. State the classification of the insulating materials as per IS 8504-1994.
d. State the external causes of failure of electrical equipment.
e. Explain separate source voltage withstand test on transformer.