Seat No.

Set **P**

B.E. (Part – II) (Electrical) (New CGPA) Examination, 2018
ELECTRICAL INSTALLATION, TESTING AND MAINTENANCE

Day and Date : Thursday, 17-5-2018   Max. Marks : 70
Time : 2.30 p.m. to 5.30 p.m.

Instructions : 1) **All** questions are **compulsory**.
2) Assume **suitable** data if necessary and mention it clearly.
3) Figures to the **right** indicate **full** marks.
4) Q. No. **I** is **compulsory**. It should be solved in **first 30 minutes** in Answer Book Page No. **3**. **Each** question carries **one** mark.
5) **Answer MCQ/Objective type questions on Page No. 3 only. Don't forget to mention, Q.P. Set (P/Q/R/S) on Top of Page.**

MCQ/Objective Type Questions

Duration : 30 Minutes   Marks : 14

I. Choose the correct alternative :

1) The secondary winding of which of the following transformers is always kept closed ?
   a) Current transformer   b) Voltage transformer
   c) Power transformer   d) Step down transformer

2) If supply frequency of a transformer increases, the secondary output voltage of the transformer
   a) Increase   b) Decrease
   c) Remain same   d) Any of the above

3) Circuit breaker must perform the duty of
   a) Opening the fault circuit and breaking the fault current
   b) Being closed on to a fault
   c) Carrying fault current for short time
   d) All of the above

4) Iron losses are considered to be the constant losses. It depends on
   a) Voltage   b) Frequency
   c) Both a) and b)   d) None of these

5) Copper losses in a rotating machine is
   a) Variable losses
   b) Constant losses
   c) Both a) and b)
   d) None of these

6) The arc voltage in C.B. is
   a) in the phase of arc current
   b) lagging the arc current by 90°
   c) leading the arc current by 90°
   d) lagging the arc current by 180°

7) Which of the following factors affects on life of insulating material ?
   a) Temperature
   b) Deposition of dust
   c) Impurities
   d) All of these

8) The rotational losses in D.C. machine is equal to the
   a) Kinetic energy of armature
   b) Half of the kinetic energy of armature
   c) Square of the kinetic energy of armature
   d) Rate of change of kinetic energy

9) Which of the following fire extinguisher are toxic ?
   a) Carbon tetrachloride
   b) Sulphur hexachloride
   c) Carbon hexachloride
   d) Sulphur tetrachloride

10) How many classes of insulating materials are there ?
    a) 5
    b) 6
    c) 7
    d) 8

11) While doing procedure for leveling and alignment for gear and pulley drive, we should ensure that both shafts are
    a) Parallel
    b) Perpendicular
    c) Any position
    d) Can't say

12) For 20 H.P. to 50 H.P. rating machine, depth of foundation is
    a) 1 cm to 10 cms
    b) 5 cm to 15 cms
    c) 20 cm to 25 cms
    d) 35 cm to 60 cms

13) What is the main drawback of using paper as the insulating material ?
    a) Is hygroscopic
    b) Has poor dielectric strength
    c) Has a very low insulation resistivity
    d) Has high capacitance

14) Power transformers are designed to have maximum efficiency at
    a) Full load
    b) 50% load
    c) 80% load
    d) No load

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B.E. (Part – II) (Electrical) (New CGPA) Examination, 2018
ELECTRICAL INSTALLATION, TESTING AND MAINTENANCE

Day and Date : Thursday, 17-5-2018   Marks : 56
Time : 2.30 p.m. to 5.30 p.m.

Instructions : 1) **All** questions are **compulsory**.
2) Assume **suitable** data if necessary and mention it clearly.
3) Figures to the **right** indicate **full** marks.

SECTION – I

II. Attempt **any four** :   (4×4=16)

a) Define the following terms in connection with safety :
 i) Responsibility   ii) Authority
 iii) Accountability   iv) Monitoring.

b) Explain in brief "Total Productive Maintenance".

c) What is the need of parallel operation of alternator ? What are the conditions for satisfactory parallel operation of alternator ?

d) Classify methods of providing artificial respiration. Explain any one in detail.

e) Two single phase transformers with equal voltage ratio have impedance of $(0.819 + j2.503)\Omega$ and $(0.8 + j2.31)\Omega$ with respect to secondary. If they operate in parallel, how they will share a total load of 2000 kW at 0.8 power factor lagging ?

f) What are the factors affecting on preventive maintenance schedule ? Explain in short.

III. Attempt **any two** :   (6×2=12)

a) A D.C. machine is tested for Swinburne's test. The machine is rated for 230 V, 50 A. The observations during test were as follows :
No load current = 5A
Armature resistance = 1Ω
Shunt field resistance = 200 Ω
Find full load efficiency, if the machine was tested as D.C. motor.

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b) Explain in detail temperature rise test by loading the induction motor with generator and by direct application of mechanical load in case of induction motor.

c) Explain with neat sketch any two methods of temperature rise test in case of transformer.

SECTION – II

IV. Attempt **any four** : (4×4=16)

a) State the factors affecting life of insulating material. Explain in brief.

b) Explain with neat sketch dial test indicator.

c) Discuss in detail mechanical fault on the basis of reasons for development of faults and remedial measures.

d) Discuss in short factors involved in designing machine foundation.

e) What are the effects of misalignment in case of directly coupled drives and indirectly coupled drives ?

f) State and explain properties of good transformer oil.

V. Attempt **any two** : (6×2=12)

a) Explain acidity test, sludge test, crackle test and flash point test in short.

b) i) Write a short note on general maintenance of lead acid batteries.
   ii) Explain with neat sketch filler gauge.

c) Explain with neat sketch procedure for levelling and alignment of two shafts of directly and indirectly coupled drives.

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