SLR-EP – 282

Seat No.	

Set **P**

B.E. (Part – II) (Electrical) (New) Examination, 2016
ELECTRICAL INSTALLATION, TESTING AND MAINTENANCE

Day and Date : Tuesday, 22-11-2016 Max. Marks : 100
Time : 3.00 p.m. to 6.00 p.m.

Instructions *: 1) Q. No.* ***I*** *is* ***compulsory****. It should be solved in* ***first 30 minutes*** *in Answer Book Page No.* ***3****.* ***Each*** *question carries* ***one*** *mark.*
2) ***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.***
3) Assume suitable data if ***necessary*** *and mention it clearly.*
4) Figures to the ***right*** *indicate* ***full*** *marks.*

MCQ/Objective Type Questions

Duration : 30 Minutes Marks : 20

I. Choose the correct answer :

1) Factors affecting on preventive maintenance schedule is
   a) Position of machine b) Age of machine
   c) New technology d) All of these

2) Swinburne test is _____ method of testing machine.
   a) Regenerative b) Direct c) Indirect d) All of these

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

4) Which of the following methods providing artificial respiration ?
   a) Schafer's prone pressure method b) Silvester's method
   c) Both a) and b) d) Narcol method

5) The torque of induction motor is
   a) Directly proportional to V b) Directly proportional to V^2
   c) Inversly proportional to V d) Inversly proportional to V^2

6) While conducting momentary overload test on induction motor, the duration of excess load above 500 H.P. motor is
   a) 5 sec. b) 10 sec. c) 15 sec. d) 20 sec.

7) In moisture proofness test, temperature is maintained to
   a) 32°C b) 42°C c) 52°C d) 62°C

8) In insulation resistance test of 132 kv transformer, minimum insulation resistance is
   a) 250 MΩ b) 500 MΩ c) 750 MΩ d) 1000 MΩ

9) For induced type transformer test, test voltage is equal to _____ highest system voltage + 1000 volt.
   a) Twice b) Thrice c) Four times d) Can't say

10) As per I.E.C. for 132 kv system voltage, the impulse withstand voltage is
   a) 250 kv b) 350 kv c) 450 kv d) 550 kv

11) In dielectric absorption test by using megger, insulation resistance is measured at regular interval of _____ and recorded.
   a) 24 hour b) 12 hour c) 30 min. d) 5 min.

12) For class A insulating material, maximum operating temperature is
   a) 60°C b) 90°C c) 95°C d) 105°C

13) Polarization index is greater than _____ for class A insulation.
   a) 1 b) 1.5 c) 2 d) 2.5

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

15) In lead acid battery positive plate (anode) made up of
   a) PbO_2 b) Pb c) SO_2 d) PbO_3

16) _____ is a special type of megger and it has some modifications like rotating current reverse and rectifier.
   a) Spirit level b) Dial indicator
   c) Earth tester d) Filler gauge

17) Dial indicator are generally provided with _____ mm scale division.
   a) 0.1 b) 0.01 c) 0.001 d) 0.0001

18) 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

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

20) Depth of foundation is dependent on
   a) Cost of equipment b) Frequency
   c) H.P. rating d) None of these

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Seat No.	

B.E. (Part – II) (Electrical) (New) Examination, 2016
ELECTRICAL INSTALLATION, TESTING AND MAINTENANCE

Day and Date : Tuesday, 22-11-2016 Marks : 80
Time : 3.00 p.m. to 6.00 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** : **(4×5=20)**

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

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

c) Explain with neat sketch and resistance equation measurement of DC resistance of three phase induction motor.

d) What are the methods to measure winding resistance of transformer ? Explain any one in detail.

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

f) A brake test was carried out on shunt motor and following the observations for one reading.

Voltage	Current	Speed (rpm)	Spring Balance	
			W_1 (kg)	W_2 (kg)
250 V	2 A	1500	3	0.2

The radius of break pulley = 7.5 cm. Calculate :
   i) Input ii) Torque
   iii) Output iv) Efficiency.

III. Attempt **any two** : **(10×2=20)**

a) On Swinburne's test following results were obtained when the machine was run at rated speed and rated voltage on no load.

Motor Voltage = 500 V

No load current = 5 A

Armature resistance = 0.22 Ω

Field resistance = 250 Ω

Calculate efficiency when motor current is 100 A.

b) Classify methods of measurement of slip in case of three phase induction motor. Explain any two methods in detail.

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

SECTION – II

IV. Attempt **any four** : **(4×5=20)**

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

b) State and explain properties of good transformer oil.

c) Explain with neat sketch bearing puller.

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

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

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

V. Attempt **any two** : **(10×2=20)**

a) Explain hot dip method and vacuum impregnation for revarnishing insulation.

b) i) Write a short note on general maintenance of lead acid batteries.

ii) Write a short note on internal and external causes of failure of equipment.

c) Explain with neat sketch requirement of different dimensions of foundations for rotating and static machines.

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