## **SLR-EP - 282**

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

Day and Date : Tuesday, 22-11-2016 Ma	ax. Marks: 10	00
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Time: 3.00 p.m. to 6.00 p.m.

a) 32°C

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.

		M	ICQ/Objective Ty	уре	Questions		
Du	ratio	n : 30 Minutes		-			Marks : 20
I.	Ch	oose the correct answ	ver:				
	1)	Factors affecting on pa a) Position of maching c) New technology		b)	nce schedule is Age of machine All of these		
	2)	Swinburne test is a) Regenerative b			esting machine Indirect		All of these
	3)	<ul> <li>3) Which of the following fire extinguisher are toxic?</li> <li>a) Carbon tetrachloride</li> <li>b) Sulphur hexachloride</li> <li>c) Carbon hexachloride</li> <li>d) Sulphur tetrachloride</li> </ul>					
	4)	Which of the following a) Schafer's prone pc) Both a) and b)	•	b)	•	hod	1?
	5)	The torque of induction a) Directly proportion c) Inversly proportion	nal to V	,	Directly propor		
	6)	While conducting mo of excess load above a) 5 sec.	•	is	est on induction 15 sec.		or, the duration 20 sec.

c) 52°C

7) In moisture proofness test, temperature is maintained to

b) 42°C

d) 62°C



In insulation resistance test of 132 kv transformer, minimum insulation resistance is					
a) $250\mathrm{M}\Omega$	b) $500\mathrm{M}\Omega$	c)	$750\text{M}\Omega$	d)	1000 M $\Omega$
system voltage + 1	000 volt.				_
at regular interval of	fand	rec	orded.		
•	•	-		-	
Polarization index is	s greater than		for class	s A ins	sulation.
a) 1	b) 1.5	c)	2	d)	2.5
Which of the follow a) Temperature c) Impurities		b)	Deposition of	_	iterial ?
In lead acid battery	positive plate (and	ode	) made up of		
a) PbO <sub>2</sub>	b) Pb	c)	SO <sub>2</sub>	d)	PbO <sub>3</sub>
		gge	r and it has so	me m	odifications like
_			D: 1: :: .		
<ul><li>a) Spirit level</li><li>c) Earth tester</li></ul>		b)			
Dial indicator are ge	enerally provided v	vith	!	mm s	cale division.
a) 0.1	b) 0.01	c)	0.001	d)	0.0001
we should ensure t	hat both shafts are	)	_		
•	•	•		•	Can't say
	P. rating machine,		-		
,					
,					
		b)	Frequency		
c) H.P. rating		-		)	
	resistance is a) 250 M \( \Omega \) For induced type trasystem voltage + 1 a) Twice As per I.E.C. for 13 a) 250 kv In dielectric absorpti at regular interval of a) 24 hour For class A insulatina) 60°C Polarization index is a) 1 Which of the follow a) Temperature c) Impurities In lead acid battery a) PbO <sub>2</sub> is a sometime to be a controlled indicator are general and the controlled indicator are general parallel For 20 H.P to 50 H. a) 1 cm to 10 cm c) 20 cm to 25 cm Depth of foundation a) Cost of equipments	resistance is a) $250\mathrm{M}\Omega$ b) $500\mathrm{M}\Omega$ For induced type transformer test, test system voltage + $1000\mathrm{volt}$ . a) Twice b) Thrice  As per I.E.C. for $132\mathrm{kv}$ system voltage a) $250\mathrm{kv}$ b) $350\mathrm{kv}$ In dielectric absorption test by using meat regular interval of and a) $24\mathrm{hour}$ b) $12\mathrm{hour}$ For class A insulating material, maximal $60\mathrm{°C}$ b) $90\mathrm{°C}$ Polarization index is greater than a) 1 b) $1.5\mathrm{V}$ Which of the following factors affects a) Temperature c) Impurities  In lead acid battery positive plate (and a) $\mathrm{PbO}_2$ b) $\mathrm{Pb}$ is a special type of megrotating current reverse and rectifier. a) Spirit level c) Earth tester  Dial indicator are generally provided value a) $0.1$ b) $0.01\mathrm{V}$ While doing procedure for leveling arwe should ensure that both shafts are a) $\mathrm{Parallel}$ b) Perpendicular For $20\mathrm{H.P}$ to $50\mathrm{H.P}$ , rating machine, a) $1\mathrm{cm}$ to $10\mathrm{cm}$ c) $20\mathrm{cm}$ to $25\mathrm{cm}$ Depth of foundation is dependent on a) Cost of equipment	resistance is a) $250  \text{M}\Omega$ b) $500  \text{M}\Omega$ c) For induced type transformer test, test vo system voltage + 1000 volt. a) Twice b) Thrice c) As per I.E.C. for 132 kv system voltage, a) $250  \text{kv}$ b) $350  \text{kv}$ c) In dielectric absorption test by using meggrat regular interval of and recally and recally 24 hour b) $12  \text{hour}$ c) For class A insulating material, maximum a) $60  ^{\circ}\text{C}$ b) $90  ^{\circ}\text{C}$ c) Polarization index is greater than a) 1 b) $1.5  \text{c}$ ) Which of the following factors affects on a) Temperature b) (a) In lead acid battery positive plate (anode a) $1  \text{PbO}_2$ b) $1  \text{PbO}_2$ c) is a special type of megger rotating current reverse and rectifier. a) Spirit level b) (a) Earth tester d) Dial indicator are generally provided with a) $1  \text{c}$ b) $1  \text{c}$ c) While doing procedure for leveling and a we should ensure that both shafts are a) Parallel b) Perpendicular c) For $20  \text{H.P}$ to $50  \text{H.P.}$ rating machine, dea) $1  \text{cm}$ to $10  \text{cm}$ b) $10  \text{c}$ control of the foundation is dependent on a) Cost of equipment b)	resistance is a) $250\mathrm{M}\Omega$ b) $500\mathrm{M}\Omega$ c) $750\mathrm{M}\Omega$ For induced type transformer test, test voltage is equal to system voltage + $1000\mathrm{volt}$ . a) Twice b) Thrice c) Four times As per I.E.C. for $132\mathrm{kv}$ system voltage, the impulse w a) $250\mathrm{kv}$ b) $350\mathrm{kv}$ c) $450\mathrm{kv}$ In dielectric absorption test by using megger, insulation reat regular interval of and recorded. a) $24\mathrm{hour}$ b) $12\mathrm{hour}$ c) $30\mathrm{min}$ . For class A insulating material, maximum operating terms a) $60^\circ\mathrm{C}$ b) $90^\circ\mathrm{C}$ c) $95^\circ\mathrm{C}$ Polarization index is greater than for class a) 1 b) $1.5$ c) $2$ Which of the following factors affects on life of insulating a) Temperature b) Deposition of c) Impurities d) All of these In lead acid battery positive plate (anode) made up of a) $PbO_2$ b) $Pb$ c) $SO_2$ is a special type of megger and it has so rotating current reverse and rectifier. a) Spirit level b) Dial indicator c) Earth tester d) Filler gauge Dial indicator are generally provided with in $0.1$ b) $0.01$ c) $0.001$ While doing procedure for leveling and alignment for given should ensure that both shafts are a) Parallel b) Perpendicular c) Any position For $20\mathrm{H.P}$ to $50\mathrm{H.P}$ . rating machine, depth of foundation a) $1\mathrm{cm}$ to $10\mathrm{cm}$ b) $5\mathrm{cm}$ to $15\mathrm{cm}$ c) $20\mathrm{cm}$ to $25\mathrm{cm}$ d) $35\mathrm{cm}$ to $60\mathrm{cm}$ Depth of foundation is dependent on a) Cost of equipment b) Frequency	resistance is a) $250\mathrm{M}\Omega$ b) $500\mathrm{M}\Omega$ c) $750\mathrm{M}\Omega$ d) For induced type transformer test, test voltage is equal to system voltage + $1000\mathrm{volt}$ . a) Twice b) Thrice c) Four times d) As per I.E.C. for $132\mathrm{kv}$ system voltage, the impulse withsta a) $250\mathrm{kv}$ b) $350\mathrm{kv}$ c) $450\mathrm{kv}$ d) In dielectric absorption test by using megger, insulation resistar at regular interval of and recorded. a) $24\mathrm{hour}$ b) $12\mathrm{hour}$ c) $30\mathrm{min}$ . d) For class A insulating material, maximum operating tempera a) $60^{\circ}\mathrm{C}$ b) $90^{\circ}\mathrm{C}$ c) $95^{\circ}\mathrm{C}$ d) Polarization index is greater than for class A insulating material in a) 1.5 c) 2 d) Which of the following factors affects on life of insulating material a) Temperature b) Deposition of dust c) Impurities d) All of these In lead acid battery positive plate (anode) made up of a) $PbO_2$ b) $Pb$ c) $SO_2$ d) is a special type of megger and it has some more rotating current reverse and rectifier. a) Spirit level b) Dial indicator constant tester d) Filler gauge Dial indicator are generally provided with mms and o.1 b) 0.01 c) 0.001 d) While doing procedure for leveling and alignment for gear as we should ensure that both shafts are a) Parallel b) Perpendicular c) Any position d) For $20\mathrm{H.P}$ to $50\mathrm{H.P}$ . 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 Depth of foundation is dependent on a) Cost of equipment b) Frequency



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:

 $(4 \times 5 = 20)$ 

- 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		
voltage   Current		opood (ipiii)	W <sub>1</sub> (kg)	W <sub>2</sub> (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:

 $(10 \times 2 = 20)$ 

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 =  $0.22 \, \Omega$ 

Field resistance =  $250 \Omega$ 

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:

 $(4 \times 5 = 20)$ 

- 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:

 $(10 \times 2 = 20)$ 

- 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.