Total No. of Questions: 6 *Total No. of Printed Pages:2*

Enrollment No.....

Faculty of Engineering

End Sem (Even) Examination May-2019

EE3EW03 Electrical Distribution System

Programme: B.Tech. Branch/Specialisation: EE

Duration: 3 Hrs. **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

Q.1 i. A _____ distribution system is more reliable than the _____ distribution system. **1**
(a) Parallel, radial (b) Parallel, ring
(c) Radial, parallel (d) Ring, parallel

ii. Distributors fed at both ends has an advantage of: **1**
(a) Continuous supply (b) Fault isolation
(c) Being economical (d) All of these

iii. While designing the distribution to locality of one lac population with medium dense load requirement, we can employ: **1**
(a) Radial system (b) Parallel system
(c) Ring main system (d) Any of these

iv. What is the main type of distribution system in India? **1**
(a) Radial (b) Parallel
(c) Network (d) Both (b) and (c)

v. Material generally used for bus bar is **1**
(a) Copper (b) Aluminium
(c) Steel (d) Tungsten.

vi. Isolators are used to disconnect a circuit when **1**
(a) Line is on full load
(b) Line is energized
(c) Circuit breaker is not open
(d) There is no current in the line.

vii. For voltage boosting in distribution networks the capacitors used is: **1**
(a) Series capacitors (b) Shunt capacitors
(c) Both (a) and (b) (d) None of these

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viii. To reduce the power consumption, the capacitors should be located: **1**
(a) As close as possible to the load
(b) As far as possible to the load
(c) Not too close not too far from the load
(d) All of these

ix. Electricity meter records amount of **1**
(a) Used power (b) Used electricity
(c) Used resistance (d) Units

x. What is the reason for excess reading of the energy meter? **1**
(a) Defective wiring (b) Meter defects
(c) Over voltage (d) Both (a) and (b)

Q.2 i. Explain power quality. **2**

ii. Define distribution system. Explain different classification of load along with their characteristics. **8**

OR iii. Define load forecasting. Explain long term load forecasting and short term load forecasting. **8**

Q.3 i. Explain types of distribution feeders. **3**

ii. Explain basic design practice of the secondary distribution system. **7**

OR iii. Write short note on distributed generation. **7**

Q.4 i. Mention different benefits derived through optimal location of substations. **3**

ii. Explain capacity wise load monitoring of HT and LT feeder. **7**

OR iii. Write short note on distribution system economics. **7**

Q.5 Attempt any two:

i. Explain different types of power capacitors. **5**

ii. What is power factor correction? Explain different techniques. **5**

iii. Discuss how analysis of power loss is done. Explain appropriate actions for reduction of technical & commercial losses. **5**

Q.6 Attempt any two:

i. Explain advanced meter infrastructure system in detail **5**

ii. Define metering. Explain reactive power metering in detail. **5**

iii. Write short note on distribution automation. **5**

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Marking Scheme
EE3EW03 Electrical Distribution System

Q.1	i.	A _____ distribution system is more reliable than the _____ distribution system. (a) Parallel, radial		**1**
	ii.	Distributors fed at both ends has an advantage of: (a) Continuous supply		**1**
	iii.	While designing the distribution to locality of one lac population with medium dense load requirement, we can employ: (b) Parallel system		**1**
	iv.	What is the main type of distribution system in India? (a) Radial		**1**
	v.	Material generally used for bus bar is (b) Aluminium		**1**
	vi.	Isolators are used to disconnect a circuit when (d) There is no current in the line.		**1**
	vii.	For voltage boosting in distribution networks the capacitors used is: (a) Series capacitors		**1**
	viii.	To reduce the power consumption, the capacitors should be located: (a) As close as possible to the load		**1**
	ix.	Electricity meter records amount of (d) Units		**1**
	x.	What is the reason for excess reading of the energy meter? (b) Meter defects		**1**
Q.2	i.	Power quality definition		**2**
	ii.	Distribution system definition	4 marks	**8**
		Classification of load	2 marks	
		Characteristics.	2 marks	
OR	iii.	Definition of load forecasting	3 marks	**8**
		Explanation of long term load forecasting	3 marks	
		Explanation of short term load forecasting.	2 marks	
Q.3	i.	Types of distribution feeders.		**3**
	ii.	Basic design practice	4 marks	**7**
		Explanation of the secondary distribution system.	3 marks	
OR	iii.	Distributed generation.		**7**
		Introduction	3 marks	
		Various type	4 marks	

Q.4	i.	Benefits derived through optimal location of substations.		**3**
		At least three benefits 1 mark for each	(1 mark * 3)	
	ii.	HT load monitoring	2 marks	**7**
		LT load monitoring	5 marks	
OR	iii.	Distribution system economics.		**7**
		Introduction	2 marks	
		Detailed method (5 points)	5 marks	
Q.5		Attempt any two:		
	i.	Types of power capacitors.		**5**
		At least five types 1 mark for each	(1 mark * 5)	
	ii.	Power factor correction	3 marks	**5**
		Techniques	2 marks	
	iii.	Analysis of power loss	2 marks	**5**
		Actions for reduction of technical & commercial losses.		
		At least 3 actions 1 mark for each (1 mark * 3)	3 marks	
Q.6		Attempt any two:		
	i.	Advanced meter infrastructure system		**5**
		Definition	2 marks	
		Detailed explanation	3 marks	
	ii.	Definition of metering	2 marks	**5**
		Explanation of reactive power metering	3 marks	
	iii.	Distribution automation.		**5**
		Introduction	2 marks	
		Benefits/advantages	3 marks	

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