

**Q.P Code:**

Hall Ticket No.:

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**NARSIMHA REDDY ENGINEERING  
COLLEGE(UGC AUTONOMOUS)**

III B.Tech I Semester (NR20) Regular Examination, January  
2023

**EE3105PE: Electrical Installation and Estimation  
(Department Electrical and Electronics Engineering)**

Time :3 hours

Maximum marks:

**Note:**

- This question paper contains two parts A and B
- Part A is compulsory which carries 25 marks (1<sup>st</sup> 5 sub questions are one from each unit carry 2 Marks each & Next 5 sub questions are one from each unit carry 3 Marks). Answer all questions in Part A
- Part B Consists of 5 Units. Answer any one full question from each unit. Each question carries 10 Marks and may have a, b sub questions

Part-A

(25 Marks)

Answer all questions

Q.No	Question	M	CO	BL	PO
1)	a. Define Fuse	2	1	1	1
	b. What is service main	2	2	1	1
	c. State the main components required of pipe earthing	2	3	1	1
	d. What is the necessity of starter	2	4	1	1
	e. Define insulation resistance	2	5	1	1
	f. Classify different types of cables	3	1	2	1
	g. List the advantages of submersible irrigation pumps sets.	3	2	2	1
	h. State the factors on which earth resistance depends and give the Maximum permissible values of earth resistances.	3	3	2	1
	i. What are the factors to be considered for scientific estimation.	3	4	2	1
	j. Write the functions of rural electrification corporation.	3	5	2	1

Part-B  
 Answer any five questions  
 All Questions carry equal  
 Marks

(50 Marks)

Q.No	Question		M	CO	BL	PO
<b>UNIT-I</b>						
2)	a.	Explain how the gauge of a wire is measure by standard wire gauge.	5	1	2	1
	b.	Illustrate different types of conduit wiring systems with neat sketches				
<b>OR</b>						
3)	a.	Describe the various types of cables.	5	1	2	1
	b.	Explain the effects of shock and electrocution	5	1	2	1
<b>UNIT-II</b>						
4)	a.	Write the steps involved in estimation of power loads.	10	2	5	3
	b.	Explain the different material required for electrical installation of an electric motor for irrigation pump set				
<b>OR</b>						
5)	a.	Explain various types of service mains	5	2	2	1,2
	b.	Describe the procedural steps involved in estimation of residential wiring.	5	2	2	1,2
<b>UNIT-III</b>						
6)	a.	Draw the neat sketch of 250 kVA, 11 kV/400v, and 3-phase pole mounted substation and prepare the schedule of materials for the erection of above sub-station.	5	3	2	1,2
	b.	Draw and explain the construction of pole mounted 11kV/400V substation	5	3	4	3
<b>OR</b>						
7)	a.	Describe the method of reducing earth resistance.	10	3	5	3
	b.	A 11kV line is to be erected to give supply to a village 2 km from existing 11 kV . Prepare a Schedule of materials required for the line. Assume an average span of 50 m and 2 cut points in line.				
<b>UNIT-IV</b>						
8)	a.	Draw and explain the working principle of DOL starter.	5	4	4	3
	b.	Explain house wiring fault and its remedies with suitable example.	5	4	2	1,2
<b>OR</b>						
9)	a.	Describe the Estimate and costing of automatic electric iron.	5	4	4	3
	b.	Explain the various tools used for repairs and maintenance work of electrical device	5	4	2	1,2
<b>UNIT-V</b>						
10)	a.	Describe the step by step procedure to be followed by electrifying a village	10	5	2	1,2
	b.	The load particulars of a village are as given below.				

		<p><b>Domestic loads 200 No. each 300W</b></p> <p><b>Rice mills, 3 No., each 10 H.P</b></p> <p><b>Agricultural load, 10 No. each 7.5 H.P</b></p> <p><b>Diversity factor of the load: 1.5</b></p> <p><b>Calculate the kVA rating of the distribution transformer needed in the village to feed the load and estimate the materials required</b></p>				
<b>OR</b>						
<b>11)</b>	<b>a.</b>	<b>Explain various steps to be followed to obtain domestic service connection?</b>				
	<b>b.</b>	<p><b>A village has following loads and is to be electrified.</b></p> <p><b>(a) 50 No's domestic connections each of 200W</b></p> <p><b>(b) Agricultural pump sets each of 5 H.P rating. Take efficiency of 85%, 0.8 p.f to the pump sets.</b></p> <p><b>(c) Two floor mills of 10 H.P. capacity</b></p> <p><b>Assume a diversity factor of 2, find the suitable rating of distribution transformer and prepare the necessary quantity estimate for the electrification of village. Assume the necessary date.</b></p>				