June 12, 2024 02:30 pm - 05:30 pm 1T00833 - S.E.(Electrical Engineering)(SEM-III)
(Choice Base Credit Grading System) (R- 19) (C Scheme) / 51024 - Electrical Power System I
QP CODE: 10055374

Duration: 3 Hours **Total Marks: 80**

N.B. 1) Question 1 is compulsory
2) Attempt any three from question no.2 to 6
3) Assumptions made should be clearly stated

Q1.	**Solve any Four**	**20**
a.	Define per unit system	
b.	State advantages of hydro power plant over thermal power plant.	
c.	Enlist all types of insulators used in transmission line.	
d.	Explain the ACSR conductor used in overhead transmission line with neat diagram	
e.	Draw a diagram of cable cut-section showing all the layers in it.	
Q2.		
a.	Derive the expression for change in base of impedance (Zp.u.new)	**10**
b.	Give classification of nuclear power plants and draw a neat generalised diagram of nuclear power plant and elaborate construction and working in detail	**10**
03		
a.	State various methods to improve string efficiency and elaborate any one in detail	**10**
b.	Define string efficiency and derive the formula for three-disc suspension insulation string.	**10**
Q4.		
a.	Draw nominal π method model for medium transmission line and derive the expression for sending end voltage, sending end current, % voltage regulation and % efficiency	**10**
b.	Classify transmission lines as per distance and explain their representation in brief.	**10**
Q5.		
a.	Explain skin effect and proximity effect.	**10**
b.	Derive an equation for the capacitance of a single-phase overhead transmission line.	**10**
Q6.		
a.	Elaborate touch and step potential.	**10**
b.	Derive the expression of inductance in three phase transposed system.	**10**