[Total No. of Printed Pages:2] **CODE NO:- Z-354**

FACULTY OF ENGINEERING & TECHNOLOGY

S.E(EEP/EE/EEE)Year Examination June– 2015

Electrical Power Transmission & Dist.

(Revised)

[Time: Three *Hours*] **[Max. Marks: 80]**

"Please check whether you have got the right question paper."

i) Question no.1 & 6 are compulsory
ii) Answer any 5 question from Q .No.1 & Q.No.6.
iii) Attempt any two questions from questions no.2to question 5 from section A.
iv) Attempt any two questions from questions no. 7 to questions 10 from section B.

SECTION A

Q.1 Attempt any five.

a) What are the advantages & disadvantages of HVDC transmission? 02
b) Draw a single line diagram showing a typical distributing system. 02
c) What is ring main distribution system? 02
d) Define tariff. List the different types of tariffs 02
e) I) The power loss in an overload transmission line is mainly due to----- 02
II) The skin effect is ---- for standard conductor then the solid conductor
f) What is proximity effect? 02
g) Define string efficiency .will it be equal to 100%? 02

Q.2 a) Define load curve .What are its importance? 05
b) Write a short note on power & octur tariff & three part tariff. 05
c) Explain the requirements of a distributing system. 05

Q.3 a) Write a note on instrument transformers. 05
b) Show that in a string of suspension insulars, the disc nearest to the conductor has the highest voltage across it. 05
c) What are the different types of insulators? Write a note on pin type insulator with neat sketch. Find 05
i) The distribution of voltage over 3 insulators.
ii) String efficiency

Q.4 a) Explain any one method of improving string efficiency. 05
b) Derive an expression for the loop inductance of a single phase line. 05
c) State three parameters of transmission line .What is the effect of line parameters on performance of transmission line? 05

Q.5 Attempt any three (Write short notes) 15

a) Load fore casting
b) Substeling
c) Ferranti Effect
d) Factors affecting corona

SECTION-B

Q.6 Attempt any five

a) What is meant by sag? Illustrate the some by a figure. 02
b) State the standard voltage for following in India. 02
i) Secondary Distributing voltage.
ii) Primary distributing voltage.
c) What are the effects of lagging & loading P.f of the load on regulating? 02
d) Write any four differences between Nominal & Nominal II-method. 02
e) I) A neutral plane is one where -------- is zero. 02
II) If shunt Capacitance is reduced , then string efficiency is------
f) What is cable? State its necessity. 02
g) Compare the merits & demerits of underground system versus overhead system. 02

Q.7 a) A single 3-Ø line operated at 50 HZ is arranged unequally as D_{12}=1.5m, $D_{23} = 3m$ & $D_{31} = 2.6m$. The conductor diameter is 8mm & the line is regularly transposed .determine the inductance & capacitance per KM. 05

b) Derive the expression for capacitance of 3-Ø line with equilateral spacing. 05

c) A single phase overload transmission line delivers 500kw at 11kv, 0.8 p.f. Lagging .If resistance & rebalance per conductor is 0.45 ohm & 0.08 ohm respectively calculate. 05

i) Sending end voltage
ii) Transmission efficiency

Q.8 a) An overload 3-Ø 50 HZ, 132 kv transmission line has conductors placed in a horizontal plane 4.56m apart .Conductor diameter is 22.4 mm. If the line length is 100km, calculate the charging current per phase assuming complete transposition. 05

b) Explain nominal T-network with vector diagram. 05

c) A 3-Ø line delivers 3600 KW at a p.f of 0.8 lagging to a load, If the sending end voltage is 33kv determine. 05

i) Receiving end voltage
ii) Line current
iii) Line losses
iv) Transmission efficiency

Q.9 a) Using rigorous method. Derive expression for sending end voltage & current for long transmission line. 05

b) A transmission line 200km long has the following consents. 05

Resistance /km =0.250Ω
Reaelence /km =0.75Ω
Susceptence /km = 2×10^{-1} Ʊ
Voltage at the receiving end is 132kv; the transmission line is delivering 50 MW at 0.85 p.f. lagging at receiving end

i) Sending end current
ii) Sending end voltage
iii) Voltage Regulation

c) Draw the neat sketch of underground cable .Explain its constructing 05

Q.10 Write short note on <u>any three</u> 15

a) Skin effect
b) Sag calculating
c) Types of insulators
d) Circuit breakers & insulators