



Sanjay Ghodawat University, Kolhapur

Established as State Private University under Govt. of Maharashtra. Act No XL, 2017

2018-19

EXM/P/09/01

Year and Program: 2018-19

School of Technology

Department of Electrical Engineering.

Class: S.Y.B.Tech

Course Code: EET209

Course Title: Generation & Transmission of Electrical power

Semester – III

Day and Date: Friday,
14-6-19

End Semester Examination
(ESE)

Time: 2.30pm-5.30pm Max Marks: 100

Instructions:

- 1) All questions are compulsory.
- 2) Assume suitable data wherever necessary.
- 3) Figures to the right indicate full marks.

Q.1	Solve any Two	Marks	Bloom's Level	CO
a)	Generating station has a maximum demand of 50,000 kW. Estimate the cost per unit generated from the following data : Capital cost = Rs. 95×10^6 ; Annual load factor = 40% ; Annual cost of fuel and oil = Rs. 9×10^6 ; Taxes, wages and salaries etc. = Rs. 7.5×10^6 ; Interest and depreciation = 12%	07	L ₂	CO1
OR				
a)	Explain the static capacitor method to improve power factor with its advantages and disadvantages.	07	L ₂	CO1
b)	Derive the appropriate equation for sag in overhead lines when supports are at equal levels.	08	L ₂	CO2
OR				
b)	Explain desirable properties of the insulator.	08	L ₂	CO2
Q.2	Solve any Two			
a)	Find the inductance per km of a three phase transmission line using 1.24 cm diameter conductors when these are placed at the corners of an equilateral triangle of each side 2 m.	07	L ₂	CO3
OR				
a)	Derive an expression for loop inductance of a single phase line.	07	L ₂	CO3
b)	Explain advantages and disadvantages of hydraulic power plant.	08	L ₂	CO4
OR				
b)	Compare hydraulic power plant with steam power plant on the basis of following factors. i) Initial cost ii) Running cost iii) Limit of sources iv) Efficiency	08	L ₂	CO4

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Q.3 Solve any Two				
a)	Determine annual bill of a consumer whose maximum demand is 100 kW, p. f. = 0.8 lagging and load factor = 60%. The tariff used is Rs.75 per kVA of maximum demand plus 15 paise per kWh consumed.	08	L ₃	CO1
b)	Sketch the diagrams of following insulators a) Suspension type insulators b) Strain insulators	08	L ₃	CO2
c)	A single phase line has two parallel conductors two meters apart. The diameter of an each conductor is 1.2 m. Determine the loop inductance per km of the line.	08	L ₃	CO3
d)	Compare Francis turbine with Kaplan turbine.	08	L ₃	CO4
Q.4 Solve any Two				
a)	Show the use of following factors in selection of site for thermal power plant. 1) Supply of fuel 2) Availability of water 3) Transportation facilities 4) Cost and type of land	09	L ₃	CO5
b)	Compare fire tube boiler with water tube boiler.	09	L ₃	CO5
c)	Draw the neat sketch and show the use of Impulse turbine and Reaction turbine used in thermal power plant.	09	L ₃	CO5
Q.5 Solve any Two				
a)	Sketch and explain the working of pressurized water reactor used in thermal power plant. Also write any four advantages of it.	09	L ₃	CO6
b)	An atomic power reactor can deliver 300 MW. If due to fission of each atom of $^{235}_{92}\text{U}$, the energy released is 200 MeV, calculate the mass of uranium fissioned per hour.	09	L ₃	CO6
c)	Explain in brief function of each part of nuclear reactor with its diagram.	09	L ₃	CO6
Q.6 Solve any Three				
a)	100 MW steam station uses coal of calorific value 6400 kcal/kg. Thermal efficiency of the station is 30% and electrical efficiency is 92%. Estimate the coal consumption per hour when the station is delivering its full rated output	06	L ₂	CO5
b)	Discuss in detail draught system used in thermal power plant.	06	L ₂	CO5
c)	Describe the different factors governing selection of site for nuclear power plant	06	L ₂	CO6
d)	Explain advantages and disadvantages of boiling water reactor.	06	L ₂	CO6

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