

Model Question Paper-1 with effect from 2019-20 (CBCS Scheme)

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Fourth Semester B.E. Degree Examination Power Generation And Economics

TIME: 03 Hours

Max. Marks: 100

Note: Answer any **FIVE** full questions, choosing at least **ONE** question from each **MODULE**.

Module -1												*Bloom's Taxonomy Level	Marks	
Q.01	a	Explain the factors to be considered for the selection of water turbine in a hydroelectric power plant										L2	06	
	b	Explain the classification of hydro power plants.										L2	06	
Q.01	c	The average weekly discharge measured at a site is given below.										L3	08	
		Week	1	2	3	4	5	6	7	8	9			10
		Q(m ³ /sec)	600	600	350	200	300	800	1500	900	400			200
		i) Calculate the average discharge available ii) Plot the hydrograph iii) Plot Flow-duration curve iv) Plot mass curve												
OR														
Q.02	a	Explain the hydrological cycle with a neat schematic diagram.										L2	06	
	b	Explain the choice of size and number of units in a hydro power plant.										L2	08	
	c	Discuss with neat schematic diagram the pumped storage hydropower plant.										L2	06	
Module-2														
Q. 03	a	Explain with block diagram the process of ash handling in a thermal power plant.										L2	06	
	b	List the advantage and disadvantages of thermal power plant										L1	08	
	c	Discuss the functions of Electrostatic precipitator, steam turbine and superheater in thermal power plant.										L2	06	
OR														
Q.04	a	List the differences between open cycle and closed cycle gas turbine power plants.										L1	06	
	b	Discuss the following in diesel power plant i) Fuel supply system ii) Air intake system										L2	08	
	c	Explain with neat sketch the layout of diesel power plant.										L2	06	
Module-3														
Q. 05	a	Explain the following with respect to nuclear power plant: i). Reflector ii) Pressurizer iii) Moderator iv) Coolants										L2	08	
	b	Discuss with neat schematic diagram i) CANDU reactor ii) Gas cooled reactor										L2	06	
	c	Discuss the advantages and disadvantages of nuclear power plant.										L2	06	
OR														
Q. 06	a	Compare various reactors used in nuclear power plant.										L3	08	
	b	Discuss the factors to be considered for site selection of nuclear power plant.										L2	06	
	c	Discuss the necessity of shielding in nuclear power plant.										L2	06	

Module-4				
Q. 07	a	Explain the need for substation grounding	L2	06
	b	Justify with a neat schematic diagram and phasor diagram that inductance of Peterson coil depends on capacitance of the system.	L3	06
	c	Discuss with schematic diagram single bus bar scheme and breaker and a half bus-bar schemes	L2	08
OR				
Q. 08	a	Discuss the various equipment's used in substations.	L2	08
	b	List the differences between air insulated substation and gas insulated substation.	L1	06
	c	Justify with a neat schematic diagram and phasor diagram that capacitive fault current is three times per phase capacitive current under normal condition in a ungrounded neutral system.	L3	06
Module-5				
Q. 09	a	A generating station has 3x50 MW units. The station output is 87600000 kWh per annum. The maximum demand is 120MW, Determine: i). Average load on the station, ii). Annual load factor, iii). Annual capacity factor.	L3	06
	b	Derive an expression for most economical power factor when i) kVA demand is kept constant ii) kW demand is kept constant	L3	08
	c	Discuss any four types of tariff used in fixation of tariff for electrical energy.	L2	06
Q. 10	a	A consumer takes a steady load of 120kW at a p.f of 0.8 lagging for 10hrs per Day & 300 days per annum. Estimate the annual payment under each of Following tariff. 1. Rs. 1.20 per kWh + Rs. 1200 per kVA per annum. 2. Rs. 1.20 per kWh + Rs. 1200 per kW per annum + 25 paise per KVARH	L3	08
	b	List the objectives and requirements of tariff.	L1	06
	c	Discuss the effects of low power factor and improving power factor.	L2	06

*Bloom's Taxonomy Level: Indicate as L1, L2, L3, L4, etc. It is also desirable to indicate the COs and POs to be attained by every bit of questions.