	Program: BE Mechanical Engineering
	Curriculum Scheme: Revised 2016
	Examination: Final Year Semester VIII
	Course Code: MEDL08041 and Course Name: PPE
Q=QUESTION	question_description
A=ANSWER	answer_description
	Module - 1
Q	The commercial sources of energy are
A	solar, wind and biomass
A	fossil fuels, hydropower and nuclear energy
A	wood, animal wastes and agriculture wastes
A	Tidal,Geothermal
Q	Compounding of steam turbine is done for
A	reducing the work done
A	increasing the rotor speed
A	reducing the rotor speed
A	balancing the turbine
Q	In India largest thermal power station is located at
A	Kota
A	Sarni
A	Chandrapur
A	Neyveli
Q	The percentage O2 by Veight in atmospheric air is
A	0.18
A	0.23
A	77%
A	0.79
Q	The proper indication of incomplete combustion is
A	high CO content in flue gases at exit
A	high CO2 content in flue gases at exit
A	high temperature of flue gases
A	the smoking exhaust from
Q	India's first nuclear power plant was installed at
A	Tarapore
A	Kota
A	Kalpakkam
A	Chandrapur
Q	The energy radiated by sun on a bright sunny day is approximately
A	700 W/m2
A	800 W/m2
A	1 kW/m2
A	2 kW/m2
Q	Thorium Breeder Reactors are most suitable for India because
A	these develop more power
A	its technology is simple
A	abundance of thorium deposits are available in India
A	these can be easily designed
Q	The overall efficiency of thermal power plant is equal to

A	Rankine cycle efficiency
A	Carnot cycle efficiency
A	Regenerative cycle efficiency
A	Boiler efficiency x turbine efficiency x generator efficiency
Q	Rankine cycle efficiency of a good steam power plant may be in the range of
A	15 to 20 percent
A	35 to 45 percent
A	70 to 80 percent
A	90 to 95 percent

Q=QUESTION	question_description
A=ANSWER	answer_description
	Module - 2
Q	Which of the following is the curve drawn between flow available during a period and the fraction of time
A	Hydrograph
A	Flow duration curve
A	Mass flow curve
A	None
Q	The main phase of hydrological cycle is?
A	Infiltration
A	Evaporation
A	Precipitation
A	None
Q	The cheapest plant in operation and maintenance is
A	Steam power plant
A	Nuclear power plant
A	Hydro-electric power plant
A	Diesel power plant
Q	Hydroelectric power plant is
A	Non-renewable source of energy
A	Conventional source of energy
A	Non-conventional source of energy
A	Continuous source of energy
Q	Which statement about hydroelectric power plant is wrong?
A	Efficiency of hydroelectric power plant does not reduce with age
A	Its construction coast is very high and takes a long time for erection
A	It is very neat and clean plant because no smoke or ash is produced
A	Meeting rapidly changing load demands is not possible in hydroelectric power plant
Q	The power output from a hydro-electric power plant depends on which three parameters ?
A	Head, discharge and efficiency of the system
A	Head, type and dam of discharge
A	Efficiency of the system, type of draft tube and type of turbine used
A	Type of dam, discharge and type of catchment area
Q	The flow duration curve at a given head of a hydroelectric plant is used to determine
A	Diversity factor of the plant
A	Total power at the site
A	Total energy available
A	Load factor of the plant
Q	In hydroelectric power plant
A	operating cost is low and initial cost is high
A	operating cost is high and initial cost is low
A	both operating cost as well as initial costs are high
A	both operating cost as well as initial cost are low
Q	The pumped storage scheme is employed to supply.

A	during the peak hours.
A	during the off-peak hours.
A	system base load.
A	all of the these
Q	If the discharge is 1 m3/s and head of the water is 1 m, then the power generated by the alternator in one hour(assume 100% efficiency of generator and turbine) will be
A	10 kW.
A	73/75 kW.
A	736/75 kW.
A	100 kW.
Q	In a hydro plant, if the discharge is 200 m3/s and the head of the water is 100 m. If the efficiency of the turbine alternator is set to 0.85, find the power developed
A	66.67MW
A	166.7MW
A	667.8MW
A	176.52 MW
Q	Surge tank is for the protection of
A	Dam
A	Spillways
A	Penstock
A	Headwork's
Q	A hydroelectric power station is commonly found in
A	Grasslands
A	Hilly areas
A	Desert areas
A	Swapms
Q	A penstock is used as a condition between
A	the turbine and discharge drain
A	the heat ex-changer and the turbine in nuclear power plant
A	the dam and the turbine in a hydro station
A	none of above
Q	In hydro power stations what is an enlarged body of water just above the intake and used as a regulating reservoir called ?
A	Penstock
A	Spillways
A	Reservoir
A	Fore bay
Q	Gross head of a hydroelectric power station is
A	the height of water level in the river where the storage is provided
A	the difference of water level between the level in storage and tail race
A	the height of water level in the river where the tail race is provided
A	all of these
Q	The annual depreciation of hydro power plant is about
A	0.5 - 1.5 %
A	10 - 15 %
A	15 - 20 %

A	20 - 25 %
Q	Pump storage schemes are used to improve
A	the load factor
A	the power factor
A	the plant capacity factor as well as the load factor of the power system
A	the diversity factor

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A=ANSWER	answer_description
	Module - 3
Q	The pressure at the furnace is minmum in case of
A	Induced draught system
A	\Balnced draught system
A	Forced draught system
A	Natural draught system
Q	The modern steam turbine are
A	Impulse turbine
A	Raction turbine
A	Kaplan turbine
A	Implue -reaction turbine
Q	Carnot cycle comprises of
A	Two isentropic process and two constant volume process
A	Two isothermal processes and three constant pressure process
A	Two isentropic processes and one constant volume processes
A	Two isentropic and two constant pressure process
Q	The precentage O2 by volume in atmosphere air is
A	21%
A	23%
A	77%
A	79%
Q	In a boiler installation the natural drauught is produce
A	Due to the fact that furnace gases being light go through the chimeny giving place to cold air from outside to rush
A	Due to the fact that pressure at the grate due to cold column is higher than the pressure at the chimney base due to hot column
A	Due to the fact that at the chimeny top the pressure is more than its enviromental pressure
A	Due to the fact that pressure at grate due to cold cloumn is higher than the pressure at the chimeny base due to hot column
Q	The ratio of exit pressure to inlet pressure for maximum mass flow rate per unit area of steam through a nozzle when staem is intially dry saturated is
A	0.6
A	0.578
A	0.555
A	0.547
Q	The cooling section in the surface condenser
A	Increases the quantity of vapour extracted along with air
A	Reduces the quantity of vapour extracted along with water
A	Does not affect vapour quantity extracted but reduces pump capacity of air extractin pump
A	Reduces the quantity of vapour extracted along with air
Q	Economisers improve boiler efficency by
A	1 to 5%
A	4 to 10%

A	10 to 12 %
A	6 to 10%
Q	Travelling grate stoker can burn coals at the rate of
A	50-75 kg/m per hour
A	75-100 kg/m per hour
A	100-150 kg/m per hour
A	150-200kg/m per hour
Q	Parson's turbine is
A	Pressure compounded steam turbine
A	Simple single wheel,impulse steam turbine
A	Simple single wheel reaction steam turbine
A	Multi wheel reaction steam turbine
Q	Reheat cycle in steam power plant is used to
A	Utilize heat of flue gases
A	Increases thermal efficency
A	Imrove condenser performance
A	Reduce loss of heat
Q	In a regernative feed heating cycle,the gratest economy is affected
A	When steam is extracted from only one suitable point of steam turbine
A	When steam is extracted from several places in different stages of steam turbine
A	When steam is extracted only from the last stage of steam turbine.
A	When steam is extracted only from the frist stage of steam turbine.
Q	Thorium breeder reactors are most suitable for India because
A	These develop more power
A	It's techonology is simple
A	Abundance of thorium deposites are avaible in india
A	These can be easily designed
Q	The ratio of exit pressure to inlet pressure of maximum mass flow rate per area of steam through a nozzle when steam is intially supereated is
A	0.555
A	0.578
A	0.5457
A	0.6
Q	In De laval Steam turbine
A	The pressure in the turbine rotor is approximately same as in condenser
A	The pressure in the turbine rortor is higher than pressure in the condenser
A	The pressure in the turbine rotor gradually decreases from inlet to exit from condenser
A	The pressure in the turbine rortor is approximately opposite as in condenser
Q	The value of reheat factor normally varries from
A	0.5 to 0.6
A	0.9 to 0.95
A	1.02 to 1.06
A	1.2 to 1.6
Q	In a surface condenser if air is removed ,there is
A	Fall in absolute pressure maintained in condenser
A	Rise in absolute pressure maitained in condenser

A	No change in absolute pressure in the condenser
A	Rise in temperature of condensed steam
Q	For the saftey of asteam boiler the numbers of safety valves fitted are
A	Four
A	Three
A	Two
A	One

Q=QUESTION	question_description
A=ANSWER	answer_description
	Module - 4
Q	What is the air standard cycle for a Gas-Turbine called?
A	Reheat cycle
A	Rankine cycle
A	Brayton cycle
A	Diesel cycle
Q	What is the difference between a Rankine cycle & a Brayton cycle?
A	working fluid in a Brayton cycle undergoes phase change while it doesn't in Rankine cycle
A	working fluid in a Brayton cycle doesn't undergo phase change while it does in Rankine cycle
A	both are same
A	Cant Define
Q	Which of the following is a type of Gas Turbine Plant?
A	Single Acting
A	Double Acting
A	Open
A	closed
Q	A Gas Turbine is which type of combustion plant?
A	external
A	open
A	internal
A	closed
Q	Which among these is the main component of a gas turbine plant?
A	Condenser
A	Compressor
A	Boiler
A	Both Compressor & Boiler
Q	Which type of compressor is used in a gas turbine plant?
A	Reciprocating compressor
A	Screw compressor
A	Multistage axial flow compressor
A	Either Reciprocating compressor & Screw compressor
Q	The gas turbine power plant mainly uses which among the following fuels?
A	Coal and Peat
A	Kerosene oil and diesel oil and residual oil
A	Gas oil
A	Natural gas and liquid petroleum fuel
Q	In gas turbine, intercooler is placed ___
A	before low pressure compressor
A	in between low pressure compressor and high pressure compressor
A	in between high pressure compressor and turbine
A	in between low pressure turbine and high pressure turbine
Q	Gas and Steam turbine combined power plant produces more electricity than traditional power plants by how much percent?
A	25-28

A	40-42
A	50-53
A	100-200
Q	Maximum supplementary firing means _____
A	minimum fuel that can be fired
A	maximum fuel that can fired with the oxygen available in turbine
A	maximum fuel that can be fired in given time
A	minimum fuel that can be fired in given time
Q	Combination of two or more thermodynamic processes gives _____
A	decrease in efficiency
A	increase in efficiency
A	increases the temperature at exhaust
A	none of the mentioned
Q	By using combined cycle steam and gas power plant _____
A	specific fuel consumption can be decreased
A	efficiency increased
A	specific fuel consumption can be decreased and efficiency increased
A	none of the mentioned
Q	_____ Gas turbines are called as Auxiliary power units.
A	Smaller
A	Larger
A	Medium
A	Unpredicted
Q	Which of these is a binary cycle?
A	Mercury-steam cycle
A	Mercury-water cycle
A	Mercury-Sodium cycle
A	None of the mentioned
Q	The mercury steam cycle represents how many coupled Rankine cycles?
A	1
A	2
A	3
A	4
Q	In the mercury steam cycle, the mercury cycle is called?
A	bottoming cycle
A	middle cycle
A	topping cycle
A	none of the mentioned
Q	In the mercury steam cycle, the steam cycle is called?
A	bottoming cycle
A	middle cycle
A	topping cycle
A	none of the mentioned
Q	The maximum steam temperature in a power cycle in degree centigrade is?
A	590-620
A	490-520
A	290-320
A	90-120

Q=QUESTION	question_description
A=ANSWER	answer_description
	Module - 5
Q	The best capable alternative source which can meet the future energy demand is _____
A	thermal power plant
A	nuclear power plant
A	hydroelectric power plant
A	geothermal power plant
Q	How much coal is required to generate energy equivalent to the energy generated by 1 kg of uranium?
A	30000 tonnes of high grade coal
A	300 tonnes of high grade coal
A	10000 tonnes of high grade coal
A	3000 tonnes of high grade coal
Q	Nuclear fuel in reactor lasts for _____
A	more than 5 months
A	few weeks
A	few days
A	more than 5 years
Q	Cost of nuclear fuel in nuclear power plant economics is considered as _____
A	running cost
A	maintenance cost
A	capital cost
A	development cost
Q	In economics of nuclear power plant taxes and insurance charges are taken as _____
A	operating cost
A	maintenance cost
A	capital cost
A	fixed cost
Q	Which of the following are not taken as operation and maintenance cost in economics of nuclear power plant?
A	Taxes and insurance
A	Salaries and wages of staff
A	Cost of waste disposal
A	Cost of processing materials
Q	What is the overall efficiency of nuclear power plant?
A	20 to 25%
A	25 to 30%
A	30 to 40 %
A	50 to 70 %
Q	The land area required for installation of nuclear power plant is _____
A	more than thermal power plant
A	less than thermal power plant
A	equal to thermal power plant
A	depends on type of construction

Q	With respect to the load centre which location is suitable for establishment of nuclear power plant?
A	Load centre
A	Near load centre but at reasonable distance
A	Far away from load centre
A	Near chemical industries
Q	In nuclear power stations which nuclear reaction is performed?
A	Nuclear fission
A	Nuclear fusion
A	90% fission and 10% fusion
A	90% fusion and 10% fission
Q	Which particle is bombarded on heavy nucleus of nuclear fuel?
A	Electron
A	Proton
A	Neutron
A	Photon
Q	The critical mass for U235 fission reaction is about _____
A	100Kg
A	200 Kg
A	50 kg
A	10 kg
Q	The fuel mainly used in nuclear fission reactors are:
A	U235
A	U239
A	U233
A	U238
Q	Which fissionable nuclear fuel occur in nature?
A	Plutonium
A	Thorium
A	Uranium
A	Pu239
Q	Which of the following has high fission percentage?
A	Pu239
A	U233
A	U235
A	U234
Q	Reactors used for converting fertile materials to fissile materials are called _____
A	research and development reactor
A	production reactor
A	power reactors
A	slow reactors
Q	In which part of nuclear power plant steam is produced?
A	Boiler
A	Heat exchanger
A	Chamber across the reactor
A	Air preheater
Q	What is the main function of moderator?

A	It absorb the extra neutrons
A	It divert extra neutrons
A	It slow down the speed of fast neutrons
A	It absorb the heat energy caused by nuclear reaction

Q=QUESTION	question_description
A=ANSWER	answer_description
	Module - 6
Q	A load curve is a plot of
A	Load versus generation capacity
A	Load versus current
A	Load versus time
A	Load versus cost of power
Q	Load factor during a period is
A	Average Load / Installed Capacity
A	Average Load / Maximum Load
A	Maximum Load / Average Load
A	Maximum Load / Installed Capacity.
Q	Demand factor is the
A	Maximum Demand / Average Demand
A	Maximum Demand / Connected Load
A	Average Demand / Maximum Demand
A	Connected Load / Maximum Demand.
Q	In a system if the base load is the same as the maximum demand, the load factor will be
A	1
A	Zero
A	Infinity
A	1 Percent
Q	The area under the load curve represents
A	the average load on power system
A	maximum demand
A	load factor
A	number of units generated
Q	Load duration curve indicates
A	the number of hours for which the particular load lasts during a day
A	total number of units generated for the given demand
A	total energy consumed by the load
A	the variation of load during different hours of the day
Q	In practice what is the value of diversity factor?
A	Less than Unity
A	Geater than Unity
A	Equal to or greater than Unity
A	Less than zero
Q	Which power plant has minimum operating cost?
A	Hydroelectric power plant
A	Thermal power plant
A	Nuclear power plant
A	Gas Turbine Power Plant
Q	Which of the following have highest operating cost?
A	Hydroelectric power plant
A	Thermal power plant

A	Nuclear power plant
A	Solar electric power plant
Q	Which of the following least affect the cost of electricity produced in thermal power plant?
A	Cost of fuel
A	Cost of transportation
A	The load factor
A	Salaries of higher officials
Q	Which of the following power plant have longest physical life?
A	Thermal power plant
A	Nuclear power plant
A	Hydroelectric power plant
A	Diesel power plant
Q	When load factor and diversity factor increases
A	cost of electricity decreases
A	cost of electricity also increases
A	cost of electricity remains same
A	cost of electricity increases exponential
Q	A low utilization factor for a plant indicates that
A	Plant is under maintenance
A	Plant is used for stand by purpose only
A	Plant is used for base load only
A	Plant is used for peak load as well as base load
Q	With reference to a power station which of the following is not a fixed cost?
A	Interest on capital
A	Fuel cost
A	Insurance charges
A	Depreciation
Q	Which plant can never have 100 percent load factor?
A	Hydroelectric plant
A	Base load plant
A	Nuclear power plant
A	Peak load plant
Q	In which of the following power plants the maintenance cost is usually high?
A	Nuclear power plant
A	Hydroelectric power plant
A	Thermal power plant
A	Diesel engine power plant
Q	Which Public sector undertaking (India) is associated with erection and sometimes running of thermal power plants ?
A	NTPC
A	SAIL
A	BEL
A	BHEL
Q	For any type of consumer the ideal tariff is
A	Two part tariff
A	Three part tariff
A	Block rate tariff

A	Any of these