Q=QUEST	question_description	question_	question_	question_difficulty
A=ANSW	answer_description	answer_e	answer_is	answer_position
Q	Combustion reaction of fuels is a/an _____ reaction.		M	1
A	exothermic		1	1
A	auto catalytic		0	2
A	constant enthalpy		0	3
A	endothermic		0	4
Q	Presence of _____ in a dry gaseous fuel does not contribute to its calorific value.		M	1
A	hydrogen		0	1
A	oxygen		1	2
A	carbon		0	3
A	sulphur		0	4
Q	Which fuel is partially carbonized and is considered as a primary stage in coal formation?		M	1
A	Coal bitumen		0	1
A	Anthracite		0	2
A	Peat		1	3
A	Lignite		0	4
Q	In what forms are liquid fuels available in nature?		M	1
A	Petroleum naphtha		0	1
A	Petroleum spirit		0	2
A	Light distillate		0	3
A	Crude petroleum		1	4
Q	Which gaseous fuel has a very low heating value?		M	1
A	Coke oven gas		0	1
A	Water gas		0	2
A	Blast furnace gas		1	3
A	Mond gas		0	4
Q	Higher efficiency in the combustion of solid fuel can not be achieved by		M	1
A	Proper fuel preparation.		0	1

A	Adopting efficient-fuel firing technique & equipment.			0	2
A	Supplying correct quantity of combustion air.			0	3
A	Keeping the flue gas exhaust temperature very high.			1	4
Q	The heat of combustion of a fuel		M		1
A	Is always negative.			1	1
A	Is equal to the heat of formation.			0	2
A	Can't be known without calculating it.			0	3
A	Is always positive.			0	4
Q	Proximate analysis of coal determines its _____ content.		M		1
A	Moisture, ash, sulphur & volatile matter.			0	1
A	Moisture, volatile matter, ash & fixed carbon.			1	2
A	Moisture, sulphur, nitrogen & fixed carbon.			0	3
A	Moisture, sulphur nitrogen & fixed carbon.			0	4
Q	Lancashire boiler is		M		1
A	Stationary fire tube boiler			1	1
A	Stationary water tube boiler			0	2
A	Water tube boiler with natural/forced circulation			0	3
A	Mobile fire tube boiler			0	4
Q	The diameter of internal flue tubes in a Lancashire boiler compared to its shell is		M		1
A	One-half			0	1
A	One-third			0	2
A	Two-fourth			1	3
A	Two-fifth			0	4
Q	When the circulation of water, in a boiler, is by convection currents which are set up during the heating of water, then the boiler is known as		M		1
A	internally fired boiler			0	1
A	Externally fired boiler			0	2
A	Natural circulation boiler			1	3
A	Forced circulation boiler			0	4
Q	The high steam and low water safety valve is not used in		M		1
A	Cochran boiler			0	1
A	Cornish boiler			0	2

A	Lancashire boiler			0	3
A	Locomotive boiler			1	4
Q	The feed check valve is used in order to		M		1
A	Regulate flow of boiler water Recirculate unwanted feed water			0	1
A	Check level of water in boiler drum			0	2
A	Recirculate unwanted feed water			0	3
A	Allow high pressure feed water to flow to drum and not allow reverse flow to take place			1	4
Q	An economiser _____ the steam raising capacity of a boiler.		M		1
A	Increases			1	1
A	Decreases			0	2
A	Has no effect on			0	3
A	Drastically increases			0	4
Q	Which of the following boilers is best suited to meet fluctuating demands?		M		1
A	Babcock and Wilcox			0	1
A	Locomotive			1	2
A	Lancashire			0	3
A	Cochran			0	4
Q	Which of the following statement indicates the difference between Cornish boiler and Lancashire boiler?		M		1
A	Cornish boiler is a water tube boiler whereas Lancashire boiler is a fire tube boiler			0	1
A	Cornish boiler is a fire tube boiler whereas Lancashire boiler is a water tube boiler			0	2
A	Cornish boiler has one flue tube whereas Lancashire boiler has two flue tubes			1	3
A	Cornish boiler has two flue tubes whereas Lancashire boiler has one flue tube			0	4
Q	There is no steam drum in		M		1
A	La Mont boiler			0	1
A	Loffler boiler			0	2
A	Benson boiler			1	3
A	Velox boiler			0	4
Q	The equivalent evaporation of a boiler is a measure to compare		M		1
A	The given boiler with the model			0	1
A	The two different boilers of the same make			0	2
A	Two different makes of boiler operating under same conditions			0	3

A	Any type of boiler operating under any condition			1	4
Q	The efficiency of a boiler is defined as		M		1
A	Ratio of heat actually used in producing steam to the heat liberated in the furnace			1	1
A	Ratio of the mass of steam produced to the mass of total water supplied in a given time			0	2
A	Ratio of the heat liberated in the furnace to the heat actually used in producing steam			0	3
A	Ratio of the mass of steam produced to the heat liberated in the furnace in a given time			0	4
Q	Which of the following is a water tube boiler.....		M		1
A	Locomotive boiler			0	1
A	Lancashire boiler			0	2
A	Cornish boiler			0	3
A	Babcock and wilcox boiler			1	4
Q	Boiler rating is usually defined in terms of		M		1
A	Maximum temperature of steam in Kelvin			0	1
A	Heat transfer rate in KJ/hr			0	2
A	Heat transfer area in square meter			0	3
A	steam output in kg/hr			1	4
Q	Heat is mainly transferred by conduction, convection and radiation in		M		1
A	Insulated pipes carrying hot water			0	1
A	Refrigerator freezer coil			0	2
A	Boiler furnaces			1	3
A	condensation of steam in a condenser			0	4
Q	In an impulse turbine		M		1
A	The steam is expanded in nozzles only and there is a pressure drop and heat drop			1	1
A	The steam is expanded both in fixed and moving blades continuously			0	2
A	The steam is expanded in moving blades only			0	3
A	The pressure and temperature of steam remains constant			0	4
Q	Why is compounding of steam turbines done?		M		1
A	To improve efficiency			0	1
A	To reduce the speed of rotor			1	2
A	To reduce exit losses			0	3
A	To increase the turbine output			0	4

Q	In a reaction turbine the enthalpy drop in a stage is 60 units. The enthalpy drop in the moving blades is 32 units. What is the degree of reaction?		M		1
A	0·533			1	1
A	0·284			0	2
A	0·466			0	3
A	1·875			0	4
Q	The parson's reaction turbine,the degree of reactio is.....		M		1
A	0.2			0	1
A	0.3			0	2
A	0.4			0	3
A	0.5			1	4
Q	At a stage of reaction turbine, mean blade speed is 220m/s. The speed ratio is 0.7 and rotor speed is 3000 rpm.The absolute velocity of steam at the inlet is		M		1
A	314m/s			1	1
A	220m/s			0	2
A	154m/s			0	3
A	300m/s			0	4
Q	In a single stage steam turbine, steam enters with a speed of 830 m/s. Mean blade speed is 440 m/s and nozzle angle is 20º. If the blades are equiangular, the blade angle at the exit will be		M		1
A	35˚			0	1
A	45˚			0	2
A	41˚			1	3
A	30˚			0	4
Q	In a stage of impulse reaction turbine, steam enters with a speed of 250 m/s at an angle of 20º in the direction of blade motion. The blade diameter and height are 95 cm and 10 cm respectively. If the specific volume of steam at nozzle outlet is 3.5 m^3/kg, mass flow rate of steam in kg/sec is		M		1
A	3.1			0	1
A	84.8			0	2
A	6.9			0	3
A	7.3			1	4
Q	Difference between impulse and reacion turbine		M		1

	impulse turbine only pressure energy converted into work but in reaction turbine				
A	pressure and kinetic energy converted to work			0	1
	impulse turbine only pressure energy converted into work but in reaction turbine				
A	kinetic energy converted to work			0	2
	impulse turbine only kinetic energy converted into work but in reaction turbine				
A	pressure and kinetic energy converted to work			1	3
	impulse turbine only kinetic energy converted into work but in reaction turbine				
A	pressure converted to work			0	4
Q	which is not part of velocity traingle in reaction turbine		M		1
A	Guide blade angle			0	1
A	Vane angle at inlet			0	2
A	vane angle at outlet			0	3
A	velocity of steam after nozzle			1	4
Q	Fusible plug is used for		M		1
A	to extinvish Fire in Furness			1	1
A	to control pressure			0	2
A	to control water level			0	3
A	to control steam generation			0	4
Q	Feed check valve used for		M		1
A	to control Feed water			1	1
A	to Control Pressure of feed steam			0	2
A	to control Velocity Of steam			0	3
A	to control fuel supply to boiler			0	4
Q	A gas turbine with open cycle works on		M		1
A	erricsson cycle			0	1
A	Carnot cycle			0	2
A	Rankine Cycle			0	3
A	Atkinson cycle			1	4
	The efficiency of a machine is 50% . If 300 J of energy is given to the machine, its				
Q	output is _____.		M		1
A	150J			1	1
A	100J			0	2

A	300J			0	3
A	350J			0	4
Q	In a Brayton cycle based power plant, the air at the inlet is at 27°C, 0.1 MPa. The pressure ratio is 6.25 and the maximum temperature is 800°C. Find (a) the compressor work per kg of air,Cp=1.005,k=1.4 for air coditions		M		1
A	207.72 KJ/kg			1	1
A	207.7 J/Kg			0	2
A	400 KJ/kg			0	3
A	310 J/kg			0	4
Q	The air standard cycle for a Gas-Turbine called as		M		1
A	Reheat cycle			0	1
A	Rankine cycle			0	2
A	Brayton cycle			1	3
A	Diesel cycle			0	4
Q	The main component of gas turbine plant is		M		1
A	Compressor			1	1
A	condensor			0	2
A	Boiler			0	3
A	economiser			0	4
Q	The percentage ratio of total energy at inlet with net work output of the cycle is		M		1
A	Engine Efficiency			1	1
A	Combustion efficiency			0	2
A	Thermal efficiency			0	3
A	Compression efficiency			0	4
Q	In a two stage gas turbine plant,the thermal efficiency after reheating at first stage		M		1
A	Decrease			1	1
A	Increase			0	2
A	Does not affect			0	3
A	Unpredictable			0	4
Q	Main application of gas turbines are used in		M		1
A	Locomotives			0	1
A	Aircrafts			0	2
A	Automobiles			1	3

A	Pumping stations			0	4
Q	The maximum temperature in gas turbines in range of		M		1
A	200°C-300°C			0	1
A	700°C-800°C			1	2
A	400°C-500°C			0	3
A	1000°C-1100°C			0	4
Q	The Atinkson cycle consists of		M		1
A	Two reversible isotherms and two reversible isobars			0	1
A	Two reversible isochores and two reversible adiabatics			0	2
A	Two reversible isotherms and two reversible isochores			0	3
A	Two reversible isobars and two reversible adiabatics			1	4
Q	A gas turbine power plant that operates on the simple Brayton cycle with air as the working has a specified pressure ratio 12 and temperature at point 3 is 1000K and inlet temperature at T1 is 300K.Calculate the temprature T2 and T4,k=1.4 for air coditions		M		1
A	610K ,491K			1	1
A	700K,500K			0	2
A	300K,200K			0	3
A	810K,528K			0	4
Q	Air enters the compressor of an ideal air standard Brayton cycle at 100 kPa, 25 °C, with a volumetric flow rate of 8 m 3 /s. The compressor pressure ratio is 12. The turbine inlet temperature is 1100 °C. Determine the thermal efficiency approximately,k=1.4 for air coditions		M		1
A	60%			1	1
A	70%			0	2
A	80%			0	3
A	40%			0	4
Q	In jet propulsion power unit, the function of diffusar is to		M		1
A	Collect more air			0	1
A	to raise he pressure of fluid			1	2
A	Provide robust structure			0	3
A	Beautify the shape			0	4

Q	The processes in compressor, turbine, diffuser and nozzle are		M		1
A	reversible			0	1
A	adiabatic			0	2
A	reversible and adiabatic			1	3
A	polytropic			0	4
Q	In aircraft propulsion the most widely used engine is		M		1
A	turbojet			0	1
A	turbofan			1	2
A	turboprop			0	3
A	ramjet			0	4
Q	The bypass ratio is the ratio of		M		1
A	mass flow rates of two streams			1	1
A	pressure ratio of inlet and exit			0	2
A	volume flow rate of inlet and exit			0	3
A	density flow rate of inlet and exit			0	4
Q	Removing the cowl from the fan gives us		M		1
A	turbojet			0	1
A	turbofan			0	2
A	turboprop			1	3
A	ramjet			0	4
Q	Why do the airplanes fly at higher altitude during the long flights?		M		1
A	to avoid collisions as they are at very high speed and controlling will be difficult if something (like towers, hills) comes in the way			0	1
A	it is easy to communicate with satellites at high altitudes			0	2
A	to save the fuel as air at higher altitude exerts smaller drag force on aircraft			1	3
A	because of it's safety and control			0	4
Q	The propulsive power developed by the thrust of engine is given by		M		1
A	Mair (Vexit – Vinlet)			0	1
A	Mair (Vexit – Vinlet) × Vaircraft			1	2
A	(Vexit – Vinlet) × Vaircraft			0	3
A	Mair x Vaircraft			0	4
Q	“After-burning” in a jet engine involves burning additional fuel in the:		M		1
A	Jet pipe			1	1

A	Turbine			0	2
A	Combustion chamber			0	3
A	Compressor			0	4
Q	For which of these applications is the turboshaft engine most suited?		M		1
A	Low-speed fixed-wing aircraft			0	1
A	Helicopters			1	2
A	High altitude reconnaissance aircraft			0	3
A	High-speed combat aircraft			0	4
Q	The function of the turbine in a turbojet engine is to:		M		1
A	Vapourise the fuel as much as possible			0	1
A	Drive the gas stream into the atmosphere			0	2
A	Energise the gas steam			0	3
A	Drive the compressor			1	4
Q	In a jet propulsion unit air is drawn into the rotary compressor at 27°C and 1 bar and delivered at 4 bar. The isentropic efficiency of compression is 80%. calculate the temperature at the exit of compressor.		M		1
A	482.24 k			1	1
A	461.39 k			0	2
A	460.89 k			0	3
A	170.39 k			0	4
Q	Calculate Exit velocity of jet when the enthalpy change for the nozzle of turbojet aircraft is 100 kJ/kg and velocity co-efficient is 0.97		M		1
A	1561.66 km/hr			1	1
A	1500.38 km/hr			0	2
A	1516.36 km/hr			0	3
A	1599.9 km/hr			0	4
Q	Euler equations govern _____ flows.		M		1
A	Viscous adiabatic flows			0	1
A	Inviscid flows			0	2
A	Adiabatic and inviscid flows			1	3
A	Adiabatic flows			0	4
Q	Force exerted by a jet on a stationery plate happens in how many cases?		M		1

A	3 cases			1	1
A	2 cases			0	2
A	1 case			0	3
A	4 cases			0	4
Q	The specific speed of a turbine is		M		1
A	N√P / H^1/4			0	1
A	N√P / H^3/4			0	2
A	N√P / H^5/4			1	3
A	N√P / H^7/4			0	4
Q	A jet water issues from a nozzle with a velocity 20 m/s and it impinges normally on a flat plate moving away from it at 10 m/s. The cross-sectional area of the jet is 0.01 m2 and the density of water = 1000kg/m3. The force developed on the plate is		M		1
A	1000 N			1	1
A	100 N			0	2
A	10 N			0	3
A	2000 N			0	4
Q	Find the diameter of jet D for pelton turbine, if jet ratio m and diameter of jet d are given as 20mm and 200mm.		M		1
A	12			1	1
A	10			0	2
A	0.1			0	3
A	10.5			0	4
Q	Buckets and blades used in a turbine are used to		M		1
A	Alter the direction of water			1	1
A	Switch off the turbine			0	2
A	To regulate the wind speed			0	3
A	To regenerate the power			0	4
Q	The width of the bucket for a pelton wheel is generally …… the diameter of jet		M		1
A	Double			0	1
A	Three times			0	2
A	Four times			0	3
A	Five times			1	4

Q	The number of buckets of Pelton wheel is 40 and diameter of runner is 2 meters then calculate diameter of jet is _____		M		1
A	50			0	1
A	60			0	2
A	40			1	3
A	70			0	4
Q	Velocity triangles are used to analyze _____		M		1
A	Flow of water along blades of turbine			0	1
A	Measure discharge of flow			0	2
A	Angle of deflection of jet			0	3
A	Flow of water, measure of discharge, angle of deflection.			1	4
Q	Which type of turbine is used to change the velocity of the water through its flow?		M		1
A	Kinetic turbines			0	1
A	Axial flow turbines			0	2
A	Impulse turbines			1	3
A	Reaction turbines			0	4
Q	Braking jet in an impulse turbine is used		M		1
A	To break the jet of water			0	1
A	To bring the runner to rest in a short time			1	2
A	To change the direction of runner			0	3
A	To increase the speed of runner			0	4
Q	Which kind of turbine is a Pelton Wheel turbine?		M		1
A	Tangential flow turbine.			1	1
A	Radial flow turbine			0	2
A	Outward flow turbine			0	3
A	Inward flow turbine			0	4
Q	If Hg is the gross or total head and hf is the head lost due to friction, then net or effective head(H) is given by		M		1
A	H = Hg / hf			0	1
A	H = Hg * hf			0	2
A	H = Hg + hf			0	3
A	H = Hg – hf			1	4

Q	In case of pelton wheeel, for medium speed runner the absolute angle of velocity at exit should be		M		1
A	Less than 90 degrees			0	1
A	More than 90 degrees			0	2
A	Equal to 90 degrees			1	3
A	Equal to 180 degrees			0	4
Q	In reaction turbine function of Draft tube is to		M		1
A	Increase the rate of flow			0	1
A	Prevent air from entering			0	2
A	Reconvert the kinetic energy to flow energy			1	3
A	Provide safety to turbine			0	4
Q	A hydraulic turbine converts the potential energy of water into		M		1
A	Gravitational energy			0	1
A	Thermal energy			0	2
A	Heat energy			0	3
A	Kinetic energy			1	4
Q	In reaction turbines, the runner utilizes		M		1
A	Both kinetic energy and potential energy			0	1
A	Pressure energy			1	2
A	Potential energy			0	3
A	Kinetic energy			0	4
Q	In mixed flow turbines, the water enters the blades ____ and comes out _____		M		1
A	radially, radially			0	1
A	radially, axially			1	2
A	axially, axially			0	3
A	axially, radially			0	4
Q	In which of the following type of runners in a Kaplan turbine the velocity of whirl at inlet is smaller than the blade velocity?		M		1
A	Slow Runner			0	1
A	Medium Runner			0	2
A	Fast Runner			1	3
A	Such a case is practically impossible			0	4
Q	For which of the following values of available heads may Kaplan turbine be used?		M		1

A	50 m			1	1
A	100 m			0	2
A	200 m			0	3
A	300 m			0	4
Q	In a Kaplan turbine, what is the direction of water flow?		M		1
A	Radial and then axial			0	1
A	Tangential and then axial			0	2
A	Tangential and then radial			0	3
A	Axial and then axial			1	4
Q	Governing mechanism used in case of Pelton wheel turbine is _____		M		1
A	dam gates			0	1
A	nozzle needle			1	2
A	guide vane			0	3
A	Moving vane			0	4
Q	Gross head is the difference between _____		M		1
A	head race and net head			0	1
A	head race and friction losses			0	2
A	head race and tail race			1	3
A	net head and friction losses			0	4
Q	Hydraulic efficiency of turbine is expressed as		M		1
A	Power Developed by the runner / Net power supplied at the turbine entrance			1	1
A	Net power supplied at the turbine entrance / Power Developed by the runner			0	2
A	power available at the turbine shaft / Power Developed by the runner			0	3
A	Power Developed by the runner / power available at the turbine shaft			0	4
Q	The power which appers in the expression for the specific speed is the		M		1
A	Water Power			0	1
A	Shaft Power			1	2
A	Power inlet to the turbine			0	3
A	Friction power			0	4
Q	A pump is device which transfer		M		1
A	Heat energy into Pressure energy			0	1
A	Mechanical energy into hydrualic energy			1	2

A	chemical energy into Kinetic energy			0	3
A	pressure energy into mechanical energy			0	4
Q	In case of rciprocating pump the pressure energy of a fluid is increased due to _____ of piston		M		1
A	zero displacement			0	1
A	negative displacement			0	2
A	no displacement			0	3
A	positive displacement			1	4
Q	Centrigugal pumps are _____to inward flow reaction turbine but it is _____ in action.		M		1
A	similar, reverse			1	1
A	opposite, same			0	2
A	similar, same			0	3
A	opposite, reverse			0	4
Q	Effiviency of reciprocating pump is about _____ higher compared to centrifugal pump.		M		1
A	40 to 50 %			0	1
A	80 to 90 %			0	2
A	10 to 20 %			1	3
A	60 to 80 %			0	4
Q	Capital cost is _____ and maintainance cost is _____ of reciprocating pump than centrifugal pump		M		1
A	high, low			0	1
A	high, high			1	2
A	low, high			0	3
A	low, low			0	4
Q	Single acting pump and double acting pump are the types of		M		1
A	centrifugal pump			0	1
A	vane pump			0	2
A	jet pump			0	3
A	reciprocating pump			1	4
Q	One of the following is not a part of reciprocating pump		M		1
A	impeller			1	1

A	connecting rod			0	2
A	pistion			0	3
A	crank			0	4
Q	In reciprocating pump _____is the reservoir of liquid through which water will be pumped		M		1
A	water reservoir			0	1
A	well			0	2
A	sump			1	3
A	pond			0	4
Q	single acting reciprocating pump gives _____ discharge while the double acting reciprocating pump gives _____ discharge.		M		1
A	intermittent, uniform			1	1
A	uniform, intermittent			0	2
A	uniform, uniform			0	3
A	intermittent, intermittent			0	4
Q	In a single acting reciprocating pump, if discharge, Q is 3.09 m^3 per sec and total head at the beginning of suction and delivery stroke (Hs + Hd) is 45 m then power required to drive the pump is		M		1
A	1.36 kW			1	1
A	139.05 kW			0	2
A	14.56 kW			0	3
A	6.86 kW			0	4
Q	Calculate theorotical discharge by reciprocating pump if diameter of piston is 140 mm, stroke length 240 mm and it runs at 48 rpm.		M		1
A	0.1773 m^3 per min			1	1
A	2.956 m^3 per min			0	2
A	0.35168 m^3 per min			0	3
A	0.0844 m^3 per min			0	4
Q	In reciprocating pump, air vessels are fitted _____		M		1
A	on cylinder			0	1
A	on crank			0	2
A	on receiver			0	3

A	in suction and delivery pipe			1	4
Q	Priming is necessary in ____		M		1
A	reciprocating pump			0	1
A	centrifugal pump			1	2
A	both reciprocating and centrifugal			0	3
A	neither reciprocating nor centrifugal			0	4
Q	Theorotical discharge of reciprocating pump _____with the increase of speed of the pump.		M		1
A	increases			1	1
A	decrases			0	2
A	remain same			0	3
A	become zero			0	4
Q	Gear pumps are not used for handling _____		M		1
A	synthetic oil			0	1
A	petrolium oil			0	2
A	water			1	3
A	water based emulsion			0	4
Q	Theorotical discharge of a double acting reciprocating pump is given by		M		1
A	Q = 2ALN / 60			1	1
A	Q = ALN / 60			0	2
A	Q = 60 / 2ALN			0	3
A	Q = 60 / ALN			0	4
Q	In centrifugal pump, Priming involves		M		1
A	filling the liquid in delivery pipe			0	1
A	filling the air in suction pipe			0	2
A	filling the liquid in suction pipe			1	3
A	removing the liquid from suction pipe			0	4
Q	Following is not the type of Centrifugal pump		M		1
A	diffuser pump			0	1
A	volute pump			0	2
A	vortex pump			0	3
A	gear pump			1	4

Q	In centrifugal pump, if velocity of flow (Vf1) at inlet is 4.244 m/s and tangential blade velocity at inlet (u1) is 10.472 then inlet angle of impeller is		M		1
A	22. 06 degree			1	1
A	67.93 degree			0	2
A	2.48 degree			0	3
A	88.71 degree			0	4
Q	The iso-efficiency curves of centrifugal pump help to locate region where the pump would operate at		M		1
A	constant efficiency			0	1
A	maximum efficiency			1	2
A	minimum efficiency			0	3
A	zero efficiency			0	4
Q	In hydraulic head, NPSH is used for the analysis of _____		M		1
A	Adiabatic expansion			0	1
A	Priming			0	2
A	Wear			0	3
A	Cavitation			1	4