Program: BE Mechanical Engineering

Curriculum Scheme: Revised 2012

Examination: Third Year Semester VI

Course Code: MEC604 and Course Name: Thermal and Fluid Power Engineering

Time: 1hour Max. Marks: 50

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Note to the students:- All the Questions are compulsory and carry equal marks .

Q1.	If steam water content is 5%, its dryness fraction is
Option A:	95%
Option B:	0%
Option C:	5%
Option D:	100%
Q2.	The specific speed of a turbine represented as (Where N = Normal working speed (r.p.m.), P = Power output, H=Net head (in meters)
Option A:	NѴP / H^5/4
Option B:	NѴP / H^1/4
Option C:	NѴP / H^3/4
Option D:	NѴP / H^7/4
Q3.	A draft tube needed in
Option A:	Francis turbine
Option B:	Pelton wheel turbine
Option C:	Kaplan turbine
Option D:	Free wheel
Q4.	Cavitation damage in turbine runner occurs near the
Option A:	inlet on the convex side of blades
Option B:	outlet on the convex side of blades
Option C:	inlet on the concave side of blades
Option D:	outlet on the concave side of blades
Q5.	Steam enters a De Laval steam turbine with an inlet velocity of 30 m/s and leaves with an outlet velocity of 10 m/s. The work done by 1kg of steam is
Option A:	400 Nm
Option B:	600 Nm
Option C:	800 Nm
Option D:	1200Nm
Q6.	What is bypass ratio in Turbofan?

Option A:	Mass of fuel / mass of air
Option B:	Mass of the air passing through the engine / Mass of the air bypassing the engine
Option C:	Air entering the engine / Air leaving the engine
Option D:	Mass of the air bypassing the engine / Mass of the air passing through the engine
Q7.	Gas turbine works on
Option A:	Carnot cycle
Option B:	Brayton or Atkinson cycle
Option C:	Rankine cycle
Option D:	Ericsson cycle
Q8.	Maximum amount of energy lost in boiler due to
Option A:	incomplete combustion
Option B:	flue gases
Option C:	unburnt carbon in ash
Option D:	ash content
Q9.	The ratio of power developed by the runner to the power supplied by the jet at entrance tothe turbine is known as
Option A:	hydraulic efficiency
Option B:	mechanical efficiency
Option C:	volumetric efficiency
Option D:	overall efficiency
Q10.	A surge tank is used to
Option A:	prevent occurrence of hydraulic jump
Option B:	smoothen the flow
Option C:	relieve the pipeline of excessive pressure transients
Option D:	avoid reversal of flow.
Q11.	Why only rocket engines can be propelled to space because
Option A:	They can generate very high thrust
Option B:	They are not air breathing engines
Option C:	They have high propulsion efficiency
Option D:	These engines can work on several fuels
Q12.	Which of the following turbines is suitable for specific speed ranging from 300 to 1000 and heads below 30 m?
Option A:	Francis
Option B:	Kaplan
Option C:	Propeller
Option D:	Pelton.

Q13.	De-Laval turbine is a type of
Option A:	Impulse Reaction Turbine
Option B:	Multi-Rotor Impulse Turbine
Option C:	Single Rotor Impulse Turbine
Option D:	Two-Rotor Impulse Turbine
Q14.	The axial flow compressor is mostly used in aircraft gas turbines due to its
Option A:	Higher thrust
Option B:	Low frontal area
Option C:	High pressure rise
Option D:	High temperature
Q15.	In an ideal impulse turbine, the
Option A:	Absolute velocity at the inlet of moving blade is equal to that at the outlet
Option B:	Relative velocity at the inlet of the moving blade is equal to that at the outlet
Option C:	Axial, velocity at the inlet is equal to that at the outlet
Option D:	Whirl velocity at the inlet is equal to that at the outlet
Q16.	A gas turbine plant working on Joule cycle produces 4000 kW of power. If its work ratio is 40%, what is the power consumed by the compressor?
Option A:	2000 kW
Option B:	4000 kW
Option C:	6000 kW
Option D:	8000 kW
Q17.	For a gas turbine the pressure ratio may be in the range
Option A:	2 to 3
Option B:	3 to 5
Option C:	16 to 18
Option D:	18 to 22
Q18.	The formation of scale boiler leads to
Option A:	decrease in efficiency of boile
Option B:	increase in efficiency of boiler
Option C:	increase in heat transfer
Option D:	decrease in maintenance of boiler
Q19.	Material of Blades of gas turbine are
Option A:	Carbon steel
Option B:	Stainless steel
Option C:	High nickel alloy
Option D:	High alloy steel
Q20.	What is the purpose of using economizer in the boiler?

Option A:	To heat feed water by utilizing heat from exhaust gases
Option B:	To heat feed water by utilizing some heat from superheated steam
Option C:	To superheat steam
Option D:	To increase pressure
Q21.	A turboprop is preferred to turbojet because
Option A:	It has high propulsive efficiency at high speeds
Option B:	It has high power for take off
Option C:	It can fly at supersonic speeds
Option D:	It can fly at high elevations
Q22.	Among other things, the poor part-load performance of De laval turbines is due to the
Option A:	Formation of shock waves in the nozzle
Option B:	Formation of expansion waves at the nozzle exit
Option C:	Turbulent mixing at the nozzle exit
Option D:	Increased profile losses in the rotor
Q23.	The efficiency of a simple gas turbine can be improved by using a regenerator, because the
Option A:	Work of compression is reduced
Option B:	Heat required to be supplied is reduced
Option C:	Work output of the turbine is increased
Option D:	Heat rejected is increased
Q24.	Which one of the following is the correct sequence of the position of the given components in a turboprop?
Option A:	Propeller, Compressor, Turbine, Burner
Option B:	Compressor, Propeller, Burner, Turbine
Option C:	Propeller, Compressor, Burner, Turbine
Option D:	Compressor, Propeller, Turbine, Burner
Q25.	Lancashire boiler operated as
Option A:	Internally fired boiler
Option B:	Externally fired boiler
Option C:	Forced circulation boiler
Option D:	Water tube boiler