Reg. No. : | | | | | | | | | | |

Question Paper Code:55903

B.E./B.Tech. DEGREE EXAMINATION, DEC 2020

Fifth Semester

Chemical Engineering

19UCH303- HEAT POWER ENGINEERING

(Regulation 2015)

Duration: One hour Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. Absolute zero temperature is taken as CO1- R

   (a) – 273°C (b) 273°C (c) 237°C (d) – 373°C

2. In an irreversible process, there is a CO1- R

   (a) loss of heat (b) no loss of heat (c) gain of heat. (d) no gain of heat

3. The latent heat of steam at atmospheric pressure is..... CO2- R

   (a) 1535 kj/kg (b) 1875 kj/kg (c) 2257 kj/kg (d) 2685 kj/kg

4. Otto cycle is a..... CO2- U

   (a) constant pressure cycle (b) constant volume cycle

   (c) constant teperature cycle (d) constant entropy cycle

5. The water tubes in a simple vertical boiler are CO3- R

   (a) horizontal (b) vertical (c) inclined (d) all of the above

6. The following is an accessory of a boiler. CO3- R

   (a) Pressure gauge (b) Safety valve (c) Fusible plug (d) Superheater

7. When water is heated with rise of temperature, it consumes CO4- R

   (a) Latent heat (b) Enthalpy (c) Sensible heat (d) None

8. Volume of steam is approximately CO4- R

   (a) 600 times that of water (b) 800 times that of wate

   (c) 1000 times that of water (d) None

9. Non Condensing steam turbine can also be called as _____ CO5- U

(a) Extraction steam turbine (b) Back pressure steam turbine

(c) Impulse steam turbine (d) None of the mentioned

10. Impulse blades are in the shape of _____ CO5- U

(a) Rain drop (b) Circular

(c) Half moon (d) None of the mentioned

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11.	Five kilogram of CO2 gas is contained in a piston cylinder assembly at a position of pressure of 7.5 bar and a temperature of 300K.The piston has a mass of 6000kg and a surface area of 1m2. The friction of the piston on the wall is significant and cannot be ignored.The atmosphere pressure is 1.01325 bar. The latch holding piston in position is suddenly removed and the gas is allowed to expand. The expansion is arrested is when the valve is double the original volume. Determine the work appearing in surroundings.	CO1- App	(8)
12.	Derive an expression for air-standard efficiency of dual-combustion, Cycle.	CO2- U	(8)
13.	Explain the construction and working of fire tube boilers, chain grate stoker with a layout	CO3- U	(8)
14.	Discuss briefly about different types of thermodynamic steam traps	CO4- U	(8)
15.	Explain in detail about the working of rotary vane vacuum pump with a neat sketch	CO5- U	(8)