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**3rd Sem / Mech, Prod, GE, CAD/CAM, CNC, Metallurgy,
Print Making Tech, Mech (Ad. Manu. Tech), Mech Engg
(Fabrication Tech), AME**

Subject:- Thermodynamics-1/Thermodynamics/

Time : 3Hrs.

Pr.of Therm.Engg.

M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 A system which consists of single phase is called (CO1)

- a) open system
- b) closed system
- c) heterogeneous system
- d) homogeneous system

Q.2 The envelope which separates the system from surroundings is called (CO1)

- a) Surroundings b) boundary
- c) state d) None of these

Q.3 The value of characteristic gas constant (R) is (CO2)

- a) 2.87 J/kg k b) 28.7 J/kg k
- c) 287 kJ/kg k d) 287 J/kg k

Q.4 The change of entropy when heat is rejected by gas is (CO4)

- a) negative
- b) Positive
- c) May be negative or positive
- d) None of these

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Q.5 The point at which all the three phases solid, liquid and vapour co-exist in equilibrium is called (CO4)

- a) Critical point
- b) Triple point
- c) ideal point
- d) None of these

Q.6 Which form of the vapour has a behavior close to that of perfect gas ? (CO4)

- a) Wet vapour
- b) dry saturated vapour
- c) superheated vapour
- d) None of these

Q.7 Which of the following is fire tube boiler (CO5)

- a) Lancashire boiler
- b) Babcock and wilcox boiler
- c) la-mont boiler
- d) All of above

Q.8 Diesel cycle is known as (CO1)

- a) Constant pressure cycle
- b) constant temperature cycle
- c) constant volume cycle
- d) None of above

Q.9 The volume of air delivered by the compressor. (CO6)

- a) Compressor capacity
- b) free air delivery
- c) swept volume
- d) All of these

Q.10 Constant pressure is also known as. (CO2)

- a) isothermal process
- b) Throttling process
- c) isobaric process
- d) isochoric process

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SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 Give two examples of closed system. (CO1)

Q.12 Write two examples of extensile properties (CO1)

Q.13 According to _____ law , the volume of a given mass of perfect gas varies directly to its temperature , provided the pressure remains constant. (CO2)

Q.14 In adiabatic process , no _____ transfer takes place across the system boundary. (CO2)

Q.15 Name one example of water tube boiler. (CO5)

Q.16 A hypothetical gas which obeys the law $PV=RT$ at all temperatures and pressures is called _____ (CO3)

Q.17 Dryness fraction=_____. (CO4)

Q.18 Babcock wilcox boiler is an externally fired boiler.(True/False). (CO5)

Q.19 In otto cycle , heat supplied at constant _____. (CO2)

Q.20 Centrifugal compressor is a type of rotary compressor .(True / False). (CO6)

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Define open system and closed system with examples. (CO1)

- Q.22 Name three mountings and three accessories of boiler. (CO5)
- Q.23 Explain thermodynamic equilibrium. (CO1)
- Q.24 Explain Boyle's law (CO2)
- Q.25 Derive the expression for heat supplied in Isobaric process. (CO2)
- Q.26 Explain first law of thermodynamics (CO2)
- Q.27 Define heat source, heat sink and heat pump . (CO2)
- Q.28 Write a short note on real gases. (CO3)
- Q.29 Explain triple point with diagram (CO3)
- Q.30 Draw a neat diagram of formation of steam. (CO4)
- Q.31 Write five uses of steam. (CO4)
- Q.32 Write five uses of compressed air (CO6)
- Q.33 Explain centrifugal compressor with diagram. (CO6)
- Q.34 Draw PV diagram of otto cycle . (CO2)
- Q.35 Write the conditions of reversibility of a cycle (CO2)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

- Q.36 Explain :
a) Perpetual motion machine of first kind
b) Third law of thermodynamics (CO2)
- Q.37 Explain construction and working of nestler boiler with neat sketch. (CO5)
- Q.38 Explain the working of single stage reciprocating air compressor with the help of neat sketch. (CO6)
(Note:- Course outcome / CO is for office use only)

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