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UNIVERSITY DEPARTMENT OF PHYSICS

Subject – Physics

Semester ~ 3rd

(Paper~ Generic Physics , GE-03)

GROUP – [A]

Multiple choice of Question

1. A perfectly black body
 - a. absorbs all the incident radiation
 - b. absorbs all the incident radiation to pass through it
 - c. Reflects all the incident radiation
 - d. has its surface coated with lamp black graphite
2. As the wavelength of the radiation decreases, the intensity of the black body radiations
 - a. increases
 - b. decreases
 - c. first increases than decreases
 - d. first decreases than increases
3. Change in entropy is zero during
 - a. constant pressure process
 - b. constant volume process
 - c. constant temperature process
 - d. reversible adiabatic process
4. A carnot cycle-
 - a. is bounded by two isothermal and two adiabatic on a p-v graph
 - b. only exist for an ideal gas
 - c. consist of two isothermal and two constant volume processes
 - d. is any four sided process on a p-v graph
 - e. has an efficiency equal to the enclosed areas on a p-v diagram
5. Characteristic gas constant of a gas is equal to
 - a. C/CV
 - b. CV/CP
 - c. $CP-CV$
 - d. $CP+CV$

6. A thermodynamic process where no heat is exchanged with the surroundings is
- a. isothermal b. adiabatic c. isobaric d. Isotropic
7. A heat engine that in each cycle does positive work and losses energy input would Violate –
- a. the zeroth law of thermodynamics b. the first law of thermodynamics
 c. the third law of thermodynamics d. the second law of thermodynamics
 e. newton's second law
8. The change in the energy between a chemical reaction and surroundings at constant temperature is called
- a. enthalpy charge b. enthalpy c. enthalpy profile d. dynamic enthalpy
9. The entropy of an isolated system continuouslyand becomes a at the state of equilibrium
- a. decreases, minimum b. Increases, maximum
 c. increases, minimum d. decreases, maximum
10. The first law of thermodynamics states that energy can not be
- a. created only b. destroyed only c. converted d. created and destroyed
11. Which of the following laws is applicable for the behaviour of a perfect gas
- a. Boyle's law b. Charle's law c. Gay-Lussac law
 d. all of the above e. joule's law
12. Characteristic gas content of a gas is equal to
- a. C/CV b. CV/CP c. $CP-CV$ d. $CP+CV$ E. $CP*CV$
13. Zeroth law of thermodynamics
- a. deals with of conversion of mass and energy
 b. deals with reversibility and irreversibility of process
 c. states that if two systems are both in equilibrium with a third system , they are in thermal equilibrium with each other
 d. deals with heat engines
 e. does not exist

14. The basis for measuring thermodynamic property of temperature is given by
- Zeroth law of thermodynamics
 - Second law of thermodynamics
 - Third law of thermodynamics
 - First law of thermodynamic
 - Avogadro's hypothesis
15. The final temperatures of two bodies, initially at T_1 and T_2 can range from
- $(T_1 - T_2)/2$ to $\sqrt{(T_1 * T_2)}$
 - $(T_1 + T_2)/2$ to $\sqrt{T_1 * T_2}$
 - $(T_1 + T_2)/2$ to $(T_1 * T_2)$
 - $(T_1 - T_2)/2$ to $(T_1 * T_2)$
16. A diathermic wall is one which
- prevents thermal interaction
 - permits thermal interaction
 - encourages thermal interaction
 - discourages thermal interaction
 - does not exist
17. Which of the following process are thermodynamically reversible
- throttling
 - free expansion
 - constant volume and constant pressure
 - hyperbolic and $PV=C$
 - isothermal and adiabatic
18. An ideal black body is represented by
- a method coated with a black dye
 - a glass surface coated with coal tar
 - a hollow enclosure blackened to a high temperature
 - a lump of charcoal heated to a high temperature
19. Entropy change depends on
- thermodynamic state
 - change of temperature
 - heat transfer
 - mass transfer
 - change of pressure and volume
20. the more effective way of increasing efficiency of Carnot engine is to
- increase higher temperature
 - decrease higher temperature
 - increase lower temperature
 - decrease lower temperature
 - keep lower temperature constant

21. during adiabatic compression of a high temperature.....
- a. falls b. Remains constant c. Rises d. Becomes zero
22. Which one of the following statement is true about a gas undergoing isothermal charge
- a. the temperature of the gas is constant
 b. The pressure of the gas constant
 c. the volume of the gas remains constant
 d. the gas is completely insulated from the surroundings
23. The radiation emitted by hot bodies are called as.....
- a. x- rays b. Black body radiation c. gamma radiation d. visible light
24. when a black body is heated , it emits heat radiations of
- a. infrared wavelength b..ultraviolet wavelength
 c. all wavelengths d. A particular wavelengths
25. Planck's law holds good for
- a. black bodies b. Polished bodies
 c. all coloured bodies d. all of these

GROUP – [B]

Short Answer Questions

1. What is black body radiations ? Explain it.
2. Write the planck's radiation postulates.
3. Explain kelvin's and planck's statement in second law of thermodynamics.
4. Explain the additive nature of entropy.
5. Explain zeroth low of thermodynamics.
6. Explain isothermal process in thermodynamics..

7. Explain adiabatic process in thermodynamic .
8. Write physical significance of entropy.
9. Write the physical significance of first law of thermodynamic.
10. Give the concept of heat in second law thermodynamic.

GROUP – [C]

Long Answer Questions

1. What is the first law of thermodynamics also write its physical significance ?
2. What is entropy ? How does it is related with probability?
3. What is Carnot's cycle ? Explain its work done and also find its efficiency?
4. Show the relations between constant pressure (C_p) and constant volume (C_v) of a gas.
5. Give the statistical defination of entropy.
6. Explain the specific heat of gas.

