DPP SOLUTION

- **Subject – Physical Chemistry**
- **Chapter – Thermodynamics and Thermochemistry**

DPP No.- 01

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Question-

Thermodynamics is concerned with

1. Total energy of a system

2. Energy changes in a system
3. Rate of a chemical change
4. Mass changes in nuclear reactions

Ans. (2)

Question-

Intensive property is

1. ✗ Moles → $n = \frac{\text{mass} \rightarrow \text{ext}}{\text{G.M.M.} \rightarrow \text{int}} = \text{ext}$

2. ✗ Volume 

3. ✗ Mass

4. ✓ Temperature 

Ans. (4)

Question-

Which of the following is not a state function?

1. Pressure
2. Volume
3. Temperature
4. Heat

Ans. (4)

Question-

Extensive property is

1. Enthalpy
2. ✗ Density $d = \frac{m \rightarrow ext}{V \rightarrow ext} = Int.$
3. ✓ Pressure $P = \frac{F \rightarrow ext.}{A \rightarrow ext} = Int.$
4. ✗ Temperature

Ans. (1)

Question-

A refrigerator is an example of

1. Open system
2. Closed system
3. Isolated system
4. Non thermodynamic system

Ans. (2)

Question-

Out of E, H, q, W and S which are state function?

1. E, H, W
2. E, S, H, W
3. E, H, S
4. E, H, q, W, S

Ans. (3)

Question-

Which of the following statements are false?

$\Delta U = U_P - U_R$

$U_R \quad U_P$

$R \rightarrow P$

$H_R \quad H_P$

$\Delta H = H_P - H_R$

1. Work is a state function
2. Temperature is a state function
3. Change in state is completely defined when initial and final state are specified
4. Work appears at the boundary of the system

Ans. (1)

Question-

Both q and w are _____ function and q + w is a _____ function.

1. State, State
2. State, path
3. Path, state
4. Path, path

$\Delta U = q + w$

↓

State function

Ans. (3)

Question-

Internal energy is an example of

1. Path function
2. State function
3. Both (1) and (2)
4. None of these

Ans. (2)

Question-

The intensive property among these quantities is

1. Enthalpy → energy → ext prop.
2. Mass/volume density = mass ⇒ ext / volume → ext = Intensive
3. Mass
4. Volume

Ans. (2)

Question-

In thermodynamics which one of the following is not an intensive property?

1. Pressure
2. Density
3. Volume
4. Temperature

Ans. (3)

Question-

If in a container neither mass and nor heat exchange occurs then it constitutes a

1. Closed system
2. Open system
3. Isolated system
4. Imaginary system

Ans. (3)

Question-

Which of the following is not a state function?

1. ΔS
2. ΔG
3. ΔH
4. ΔQ Q or q

↓
Path fn

Ans. (4)

Question-

Which of the following is not a state function

1. Internal energy
2. Enthalpy
3. Work
4. Entropy

Ans. (3)

Question-

Which of the following is like a state function (a) q + w, (b) q, (c) w, (d) heat in isobaric process (e) work in adiabatic process

$q_p = \Delta H$ → state function

$q = 0$

$\Delta U = q + w$

$w = \Delta U$ → state function

$q + w = \Delta U$ → ΔU → state function

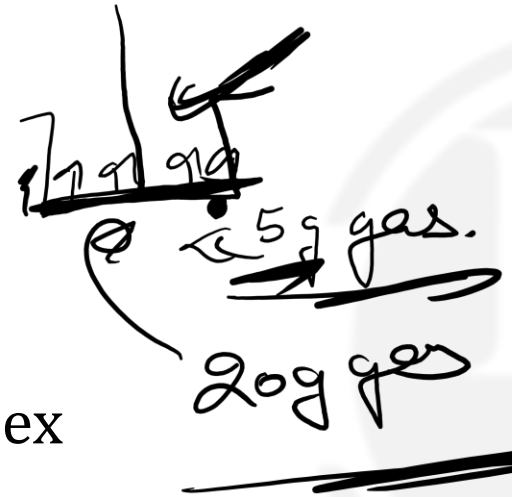
1. a, b, c
2. a, e
3. a, d, e
4. a, d

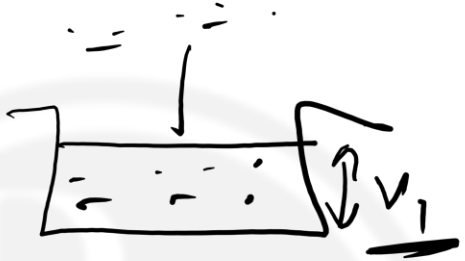
Ans. (3)

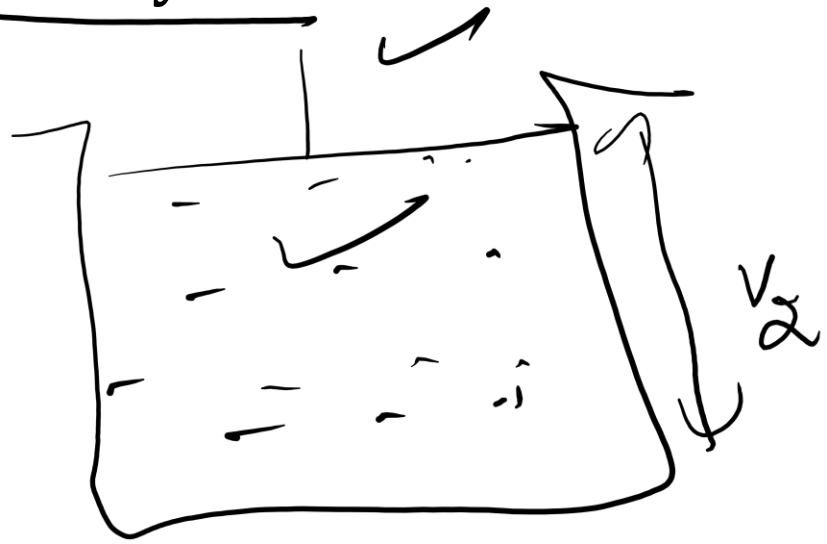
Question-

Which among the following is an extensive property of the system?

1. Temperature
2. Volume
3. Refractive index
4. Viscosity







Ans. (2)

Question-

Which of the following is not a state function?

1. Heat
2. Internal energy
3. Enthalpy
4. Entropy

Ans. (1)

Question-

Which of the following quantities is not a state function?

1. Temperature
2. Entropy
3. Enthalpy
4. Work

Ans. (4)

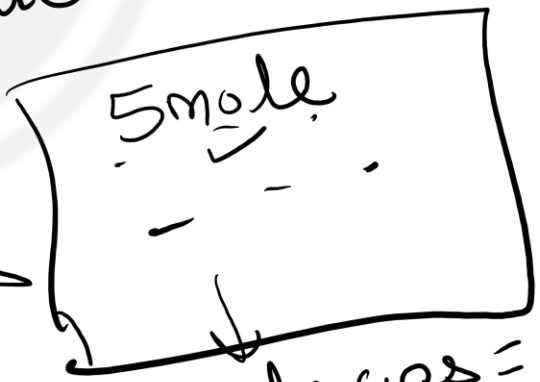
Question-

Which of the following is not an intensive property?

1. Entropy →
2. Pressure $P = \frac{F \rightarrow ext}{A \rightarrow ext}$ = int.
3. Temperature
4. Molar volume

1 mole gas vol. = Intensive Prop.

$$\text{Molar volume} = \frac{\text{1 mole gas vol. N.T.P.}}{} = 22.4\,L$$



5 mole gas = 112 L at N.T.P.

Ans. (1)

Question-

Which of the following is a state function and also an extensive property?

1. Internal energy (ext.)
2. Pressure (int.)
3. Molar heat capacity (int.)
4. Temperature (int.)

Ans. (1)

Question-

Warming ammonium chloride with sodium hydroxide in a test tube is an example of:

1. Closed system
2. Isolated system
3. Open system
4. None of these

Ans. (3)

Question-

A tightly closed thermo flask contains some ice cubes. This constitutes

1. Closed system
2. Open system
3. Isolated system
4. Non-thermodynamic system

Ans. (3)

Question-

Choose the correct answer- A thermodynamic state function is a quantity

1. Used to determine heat changes
2. Whose value is independent of path
3. Used to determine pressure volume work
4. Whose value depends on temperature only

Ans. (2)

Question-

A thermodynamic quantity is that:

1. Which is used in thermochemistry
2. Which obeys all the laws of thermodynamics
3. Quantity which depends only on the state of the system
4. Quantity which is used in measuring thermal change

Ans. (3)

Question-

Which is not characteristic of thermo-chemical equation?

$A_{(g)} + B_{(g)} \rightarrow C_{(s)}$ ΔH

1. It indicates physical state of reactants and products
2. It indicates whether the reaction is exothermic or endothermic
3. It indicates allotrope of reactants if present
4. It indicates whether reaction would occur or not

Ans. (4)

Thank You...