

National Testing Agency

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Chemical thermal and Polymer Engineering

Group Number :	1
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Chemical thermal and Polymer Engineering

Section Id :	611987395
Section Number :	1
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	75
Number of Questions to be attempted :	75
Section Marks :	300
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Sub-Section Number :	1
Sub-Section Id :	611987899
Question Shuffling Allowed :	Yes

**Question Number : 1 Question Id : 61198729930 Question Type : MCQ Option Shuffling : No
Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No
Option Orientation : Vertical**

CO (Carbon Mono Oxide) as per Indian standard is 13.0 ppm. Write this standard in mg/m^3 at 298 K and 1 atm.

1. 8 mg/m^3
2. 10 mg/m^3
3. 15 mg/m^3
4. 21 mg/m^3

Options :

611987117701. 1
611987117702. 2
611987117703. 3
611987117704. 4

Question Number : 2 Question Id : 61198729931 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

How much CO_2 is emitted in the atmosphere if 150 g of butane is oxidized fully into water and Carbon-Dioxide?

1. 455g
2. 400g
3. 350g
4. 525g

Options :

611987117705. 1
611987117706. 2
611987117707. 3
611987117708. 4

Question Number : 3 Question Id : 61198729932 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

What is the unit of Bio-concentration?

1. ml/m^3
2. L/cm
3. L/kg
4. ppm

Options :

- 611987117709. 1
- 611987117710. 2
- 611987117711. 3
- 611987117712. 4

Question Number : 4 Question Id : 61198729933 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In an agitated vessel, baffles are mainly designed to

- 1. Bubble Breakup Reduction.
- 2. Better Mixing.
- 3. Low Power Consumption.
- 4. High Heat Transfer.

Options :

- 611987117713. 1
- 611987117714. 2
- 611987117715. 3
- 611987117716. 4

Question Number : 5 Question Id : 61198729934 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

In centrifugal blower, slip factor is responsible for:-

- 1. Increase in friction.
- 2. Seal leakage.
- 3. Mechanical losses.
- 4. Change in actual exit velocity from ideal.

Options :

- 611987117717. 1
- 611987117718. 2
- 611987117719. 3
- 611987117720. 4

Question Number : 6 Question Id : 61198729935 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

When flow is compressible, mach number is the ratio of :-

1. Flow velocity to speed of sound.
2. Static head to velocity head.
3. Potential energy to kinetic energy.
4. Static to stagnant pressure.

Options :

- 611987117721. 1
- 611987117722. 2
- 611987117723. 3
- 611987117724. 4

Question Number : 7 Question Id : 61198729936 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The LMTD (Log Mean Temperature Difference) approach is best for

1. Hot fluid and cold fluid are of different phases.
2. Heat transfer coefficient changes with length of heat exchanger.
3. Terminal temperature of hot and cold fluids are known.
4. Terminal temperature of cold and hot fluids are unknown.

Options :

- 611987117725. 1
- 611987117726. 2
- 611987117727. 3
- 611987117728. 4

Question Number : 8 Question Id : 61198729937 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Select the evaporator for the heat sensitive materials:

1. Forced Circulation Evaporator
2. Rising Film Evaporator
3. Falling Film Evaporator
4. Vertical Evaporator

Options :

- 611987117729. 1
- 611987117730. 2

611987117731. 3

611987117732. 4

Question Number : 9 Question Id : 61198729938 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

High pressure homogenization result in cell disruption due to

1. Chemical Lysis
2. Thermal Shock
3. Shear Force
4. Enzymatic Digestion

Options :

611987117733. 1

611987117734. 2

611987117735. 3

611987117736. 4

Question Number : 10 Question Id : 61198729939 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Ribosomes in microbial cells mainly function to

1. Synthesize Protein
2. Synthesize DNA
3. Generate ATP
4. Transport Metabolites

Options :

611987117737. 1

611987117738. 2

611987117739. 3

611987117740. 4

Question Number : 11 Question Id : 61198729940 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which amino acid contain Sulfur atom in its side chain?

1. Tyrosine
2. Methionine
3. Alanine
4. Serine

Options :

- 611987117741. 1
- 611987117742. 2
- 611987117743. 3
- 611987117744. 4

Question Number : 12 Question Id : 61198729941 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

According to Fick's First Law, the molecular diffusion flux depends on:

1. Difference in Temperature
2. Pressure Difference
3. Concentration Gradient
4. Difference in Concentration

Options :

- 611987117745. 1
- 611987117746. 2
- 611987117747. 3
- 611987117748. 4

Question Number : 13 Question Id : 61198729942 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Two film theory assumption during mass transfer in gas-liquid is

1. No equilibrium happens at interface.
2. Only gas phase provides resistance to mass transfer.
3. Mass transfer is controlled by turbulent flow.
4. Interface is surrounded by stagnant film on both sides.

Options :

- 611987117749. 1
- 611987117750. 2

611987117751. 3

611987117752. 4

Question Number : 14 Question Id : 61198729943 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Constant reflux ratio maintained during binary mixture batch distillation results in:-

1. Disturbance of vapour liquid equilibrium.
2. Constant composition of reboiler.
3. Constant composition of distillate.
4. Decrease in distillate composition with time.

Options :

611987117753. 1

611987117754. 2

611987117755. 3

611987117756. 4

Question Number : 15 Question Id : 61198729944 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

5 kg, of water at 30°C is mixed with 4 kg of water at 85°C, the final temperature of the mixture is:

1. 330.59 K
2. 303.15 K
3. 327.59 K
4. 372.59 K

Options :

611987117757. 1

611987117758. 2

611987117759. 3

611987117760. 4

Question Number : 16 Question Id : 61198729945 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

For the relationship, $dH = TdS + VdP$, the Maxwell equation is:

$$1. \left. \frac{\partial T}{\partial P} \right|_S = \left. \frac{\partial V}{\partial S} \right|_P$$

$$2. \left. \frac{\partial T}{\partial P} \right|_S = - \left. \frac{\partial V}{\partial S} \right|_P$$

$$3. \left. \frac{\partial U}{\partial T} \right|_P = \left. \frac{\partial U}{\partial T} \right|_V$$

$$4. \left. \frac{\partial P}{\partial V} \right|_T = \left. \frac{\partial S}{\partial T} \right|_V$$

Options :

611987117761. 1

611987117762. 2

611987117763. 3

611987117764. 4

Question Number : 17 Question Id : 61198729946 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which one is not correct relationship?

$$1. G = H - TS$$

$$2. H = U + PV$$

$$3. G = H + TS$$

$$4. A = U - TS$$

Options :

611987117765. 1

611987117766. 2

611987117767. 3

611987117768. 4

Question Number : 18 Question Id : 61198729947 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The average degree of polystyrene is 1000. The number average molecular weight of polystyrene

1. 1.03×10^5
2. 9.01×10^4
3. 1.03×10^4
4. 9.8×10^5

Options :

611987117769. 1
611987117770. 2
611987117771. 3
611987117772. 4

Question Number : 19 Question Id : 61198729948 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Nylon66 is synthesized by the reaction of adipic acid and hexamethylene diamine. If the extent of reaction is 95% for the equimolar feed ratio of the monomers, then the number average degree of Polymerization is:

1. 95
2. 20
3. 50
4. 100

Options :

611987117773. 1
611987117774. 2
611987117775. 3
611987117776. 4

Question Number : 20 Question Id : 61198729949 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the polymer is not prepared by condensation polymerization?

1. Dacron
2. PET
3. PMMA
4. Nylon66

Options :

611987117777. 1

611987117778. 2

611987117779. 3

611987117780. 4

Question Number : 21 Question Id : 61198729950 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Rapid solidification of a melted metal is most likely to produce

1. Fine grains
2. Coarse grains
3. With large crystal spacing
4. Fully amorphous

Options :

611987117781. 1

611987117782. 2

611987117783. 3

611987117784. 4

Question Number : 22 Question Id : 61198729951 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

For an FCC crystal with lattice parameter "a", the atomic packing factor is :-

1. 0.74
2. 0.84
3. 0.34
4. 1.04

Options :

611987117785. 1

611987117786. 2

611987117787. 3

611987117788. 4

Question Number : 23 Question Id : 61198729952 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A metal have Young's modulus of 220 GPa and yielding strength 365 MPa. The metal strained to 0.1% strain, then the stress is

1. 220 GPa
2. 220 MPa
3. 365 MPa
4. 600 MPa

Options :

611987117789. 1
611987117790. 2
611987117791. 3
611987117792. 4

Question Number : 24 Question Id : 61198729953 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Vulcanization of rubber does not increase the

1. elasticity
2. hardness
3. rigidity
4. plasticity

Options :

611987117793. 1
611987117794. 2
611987117795. 3
611987117796. 4

Question Number : 25 Question Id : 61198729954 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Plasticizers is added in rubber compounding and processing to improve

1. hardness
2. modulus
3. processibility
4. chemical resistant

Options :

611987117797. 1

611987117798. 2

611987117799. 3

611987117800. 4

Question Number : 26 Question Id : 61198729955 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Pick the wrong statement.

1. Latex are coagulated by adding dilute acetic acid.
2. Styrene - butadiene rubber is prepared by emulsion polymerization.
3. Vulcanized rubber is a 3-D structured polymers.
4. Guttapercha is cis-polyisoprene

Options :

611987117801. 1

611987117802. 2

611987117803. 3

611987117804. 4

Question Number : 27 Question Id : 61198729956 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following fuels has the lowest calorific value?

1. Bituminous coal
2. Coke oven gas
3. Lignite
4. Pulverized coal

Options :

611987117805. 1

611987117806. 2

611987117807. 3

611987117808. 4

Question Number : 28 Question Id : 61198729957 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

A producer gas, used as an industrial fuel gas with the following composition by volume.

$H_2 = 28\%$, $CO = 12\%$, $CH_4 = 2\%$, $CO_2 = 16\%$ and $N_2 = 42\%$

Find the volume of air required for the complete combustion of 2 m^3 of this gas [Air contains 21% O_2 by volume]

1. 1.143 m^3
2. 3.005 m^3
3. 2.286 m^3
4. 1.523 m^3

Options :

611987117809. 1
611987117810. 2
611987117811. 3
611987117812. 4

Question Number : 29 Question Id : 61198729958 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The theoretical air required for the complete combustion of 5 kg of ethylene gas is: [Air: 78% N_2 and 22% O_2 by mass]

1. 107.92 kg
2. 27.52 kg
3. 17.14 kg
4. 77.92 kg

Options :

611987117813. 1
611987117814. 2
611987117815. 3
611987117816. 4

Question Number : 30 Question Id : 61198729959 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

At 700K, the value of K_c for the following reaction is 64. $H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$. If 0.5 mole of $H_2(g)$ and 0.5 mole of $I_2(g)$ were mixed at 700K and allowed to reach equilibrium. The amount of HI formed by mole is

1. 0.40
2. 0.80
3. 0.50
4. 0.66

Options :

611987117817. 1
611987117818. 2
611987117819. 3
611987117820. 4

Question Number : 31 Question Id : 61198729960 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Zymaze catalyst is present in Yeast. Zymaze decomposes to ethanol and carbon dioxide by decomposition of

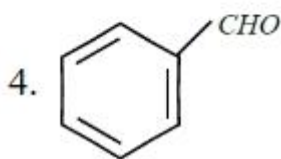
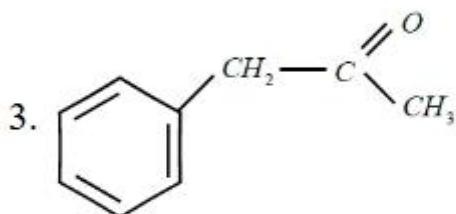
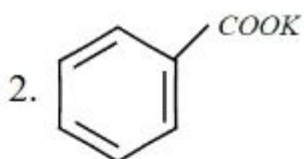
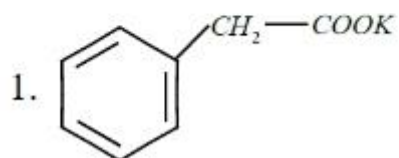
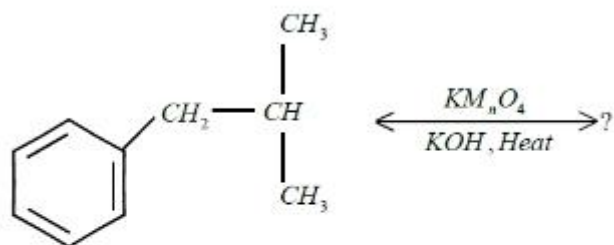
1. Glucose
2. Starch
3. Fructose
4. Sucrose

Options :

611987117821. 1
611987117822. 2
611987117823. 3
611987117824. 4

Question Number : 32 Question Id : 61198729961 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Write down the product compound?



Options :

611987117825. 1

611987117826. 2

611987117827. 3

611987117828. 4

Question Number : 33 Question Id : 61198729962 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: Environmental pollution load is decreased when fly ash is added during cement production.

Reason R: Fly ash is waste which displays excellent property to reduce clinker which results in less amount of raw material.

In the light of the above statements, choose the **most appropriate** answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options :

- 611987117829. 1
- 611987117830. 2
- 611987117831. 3
- 611987117832. 4

Question Number : 34 Question Id : 61198729963 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: Bingham plastic fluid shows solid characteristics when stress applied is low.

Reason R: Before beginning of flow Bingham plastic fluid have finite yield stress.

In the light of the above statements, choose the **most appropriate** answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options :

- 611987117833. 1
- 611987117834. 2
- 611987117835. 3
- 611987117836. 4

Question Number : 35 Question Id : 61198729964 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: Fluid property do not impact the heat transfer coefficient of natural connection.

Reason R: Density difference occurring in fluid impact the buoyancy forces which governs natural connection.

In the light of the above statements, choose the *most appropriate* answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options :

- 611987117837. 1
- 611987117838. 2
- 611987117839. 3
- 611987117840. 4

Question Number : 36 Question Id : 61198729965 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: Microbial growth is increased when agitation speed rises.

Reason R: Oxygen mass transfer improves but shear damage to cell also occurs.

In the light of the above statements, choose the *most appropriate* answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options :

- 611987117841. 1
- 611987117842. 2
- 611987117843. 3
- 611987117844. 4

Question Number : 37 Question Id : 61198729966 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: The physical properties and fluid velocity of the system influences the mass transfer coefficient.

Reason R: Flow condition impact the boundary layer thickness which controls the convective mass transfer.

In the light of the above statements, choose the *most appropriate* answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options :

- 611987117845. 1
- 611987117846. 2
- 611987117847. 3
- 611987117848. 4

Question Number : 38 Question Id : 61198729967 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: An increase of temperature of a chemical reaction at constant pressure, the equilibrium value of the reaction shifts in the direction in which the heat of reaction absorbed.

Reason R: To minimize the Gibbs free energy change due to increase in temperature, the heat of reaction needs to be absorbed by shifting the equilibrium value.

In the light of the above statements, choose the *most appropriate* answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options :

- 611987117849. 1
- 611987117850. 2

611987117851. 3

611987117852. 4

Question Number : 39 Question Id : 61198729968 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: PVC is a thermoplastic.

Reason R: Plasticizers are used to make PVC flexible.

In the light of the above statements, choose the *most appropriate* answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options :

611987117853. 1

611987117854. 2

611987117855. 3

611987117856. 4

Question Number : 40 Question Id : 61198729969 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: The ductility of metals is affected of dislocations of atomic structure, it increases the ductility of metals.

Reason R: Dislocations mostly occurs at the lower stress than the predicted shear strength.

In the light of the above statements, choose the *most appropriate* answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options :

611987117857. 1

611987117858. 2

611987117859. 3

611987117860. 4

Question Number : 41 Question Id : 61198729970 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: Below glass transition temperature polymers behave as a glass and above glass transition temperature polymers behave as an elastomer.

Reason R: Below glass transition temperature polymer chain becomes rigid (seized all types of polymer chain movement) and behaves like an glass above glass transition temperature polymer chain segments becomes flexible and stress movement as a result polymers behave like elastomer.

In the light of the above statements, choose the *most appropriate* answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options :

611987117861. 1

611987117862. 2

611987117863. 3

611987117864. 4

Question Number : 42 Question Id : 61198729971 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: Liquid fuels have higher calorific value than solid fuels.

Reason R: Solid fuels ignite at lower temperature than liquid fuels.

In the light of the above statements, choose the **most appropriate** answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options :

611987117865. 1

611987117866. 2

611987117867. 3

611987117868. 4

Question Number : 43 Question Id : 61198729972 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**

Assertion A: The FTIR spectrum of a compound is generally used to identify the functional groups present in it.

Reason R: As each functional groups have different elements and chemical-bonds as compared to main elements present in it.

In the light of the above statements, choose the **most appropriate** answer from the options given below

1. Both **A** and **R** are correct and **R** is the correct explanation of **A**
2. Both **A** and **R** are correct but **R** is NOT the correct explanation of **A**
3. **A** is correct but **R** is not correct
4. **A** is not correct but **R** is correct

Options :

611987117869. 1

611987117870. 2

611987117871. 3

611987117872. 4

Question Number : 44 Question Id : 61198729973 Question Type : MCQ Option Shuffling : No

Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Lubricating oil, which has been used is re-refined as per sets mentioned below.

- A. Removal of impurities and dehydration.
- B. Blending and product finishing.
- C. Segregation and collection.
- D. Base oil recovery and distillation.

Choose the **correct** answer from the options given below:

- 1. B, C, A, D
- 2. D, A, B, C
- 3. C, A, B, D
- 4. A, B, C, D

Options :

- 611987117873. 1
- 611987117874. 2
- 611987117875. 3
- 611987117876. 4

Question Number : 45 Question Id : 61198729974 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Please arrange the following according to escalating Mach number.

- A. Supersonic
- B. Transonic
- C. Hypersonic
- D. Subsonic

Choose the **correct** answer from the options given below:

- 1. D, B, A, C
- 2. C, B, A, D
- 3. A, D, C, B
- 4. B, A, D, C

Options :

- 611987117877. 1
- 611987117878. 2
- 611987117879. 3
- 611987117880. 4

Question Number : 46 Question Id : 61198729975 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

How does heat transfer enhance due to turbulence?

- A. Decrease in thermal resistance.
- B. Increase in convective coefficient.
- C. Mixing is induced by velocity change.
- D. Thinning of boundary layer.

Choose the **correct** answer from the options given below:

- 1. A, C, B, D
- 2. B, C, D, A
- 3. A, D, C, B
- 4. C, D, A, B

Options :

- 611987117881. 1
- 611987117882. 2
- 611987117883. 3
- 611987117884. 4

Question Number : 47 Question Id : 61198729976 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Enzyme regulation by feedback inhibition.

- A. Reduced enzyme activity.
- B. Accumulation of end product.
- C. End product bind to allosteric site.
- D. Decrease in intermediate formation.

Choose the **correct** answer from the options given below:

- 1. A, B, C, D
- 2. B, C, A, D
- 3. B, D, C, A
- 4. D, A, B, C

Options :

- 611987117885. 1
- 611987117886. 2

611987117887. 3

611987117888. 4

Question Number : 48 Question Id : 61198729977 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

During batch distillation composition change occurs.

- A. Heavy component increases in still
- B. Distillate formed from condensation of vapor
- C. Vapor formation occurs in still
- D. As time passes composition of distillate decreases

Choose the **correct** answer from the options given below:

- 1. A, B, C, D
- 2. B, D, A, C
- 3. C, A, B, D
- 4. C, B, D, A

Options :

611987117889. 1

611987117890. 2

611987117891. 3

611987117892. 4

Question Number : 49 Question Id : 61198729978 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Arrange the following based on enthalpy content at 100°C per kg of water.

- A. Saturated vapor
- B. Superheated vapor
- C. Vapor with 95% quality
- D. Enthalpy of vaporization

Choose the **correct** answer from the options given below:

- 1. A, B, C, D
- 2. B, A, C, D
- 3. B, C, A, D
- 4. A, B, D, C

Options :

- 611987117893. 1
- 611987117894. 2
- 611987117895. 3
- 611987117896. 4

Question Number : 50 Question Id : 61198729979 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Arrange the following temperature terms with reference to water/water vapor:

- A. Dry-bulb temperature (T_D)
- B. Boiling temperature (T_B)
- C. Dew temperature (T_{DW})
- D. Wet bulb temperature (T_w)

Choose the **correct** answer from the options given below:

- 1. B, D, C, A
- 2. A, B, C, D
- 3. B, A, D, C
- 4. A, B, D, C

Options :

- 611987117897. 1
- 611987117898. 2
- 611987117899. 3
- 611987117900. 4

Question Number : 51 Question Id : 61198729980 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Arrange the NR modulus properties of NR in descending order with same dose of cross linkers,

- A. Vulcanized NR with 30 phr Carbon black (HAF)
- B. Vulcanized NR with 10 phr Plasticizer (DOP)
- C. Vulcanized NR
- D. Vulcanized NR with 10 phr DOP and 30 phr HAF.

Choose the **correct** answer from the options given below:

- 1. D, A, C, B
- 2. C, D, A, B
- 3. D, A, B, C
- 4. A, D, C, B

Options :

- 611987117901. 1
- 611987117902. 2
- 611987117903. 3
- 611987117904. 4

Question Number : 52 Question Id : 61198729981 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Arrange the following based on their calorific value per kg of fuel.

- A. Wood Char Coal
- B. Dry Cow Dung
- C. Kerosene
- D. Natural gas

Choose the **correct** answer from the options given below:

- 1. D, C, B, A
- 2. A, D, C, B
- 3. D, A, B, C
- 4. D, C, A, B

Options :

- 611987117905. 1
- 611987117906. 2
- 611987117907. 3
- 611987117908. 4

Question Number : 53 Question Id : 61198729982 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Arrange the following based on the particle size that are separated out from a solution.

- A. Ultrafiltration
- B. Sedimentation
- C. Filter paper (Whatman 40)
- D. Press filtration

Choose the **correct** answer from the options given below:

- 1. B, D, C, A
- 2. C, B, A, D
- 3. B, A, C, D
- 4. A, B, C, D

Options :

- 611987117909. 1
- 611987117910. 2
- 611987117911. 3
- 611987117912. 4

Question Number : 54 Question Id : 61198729983 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Different types of waste used in construction material

- A. Red mud
- B. Ash of rice husk
- C. Activated Carbon
- D. Fly ash

Choose the **correct** answer from the options given below:

- 1. A, B and C Only
- 2. B, C and D Only
- 3. A, C and D Only
- 4. A and D Only

Options :

- 611987117913. 1
- 611987117914. 2
- 611987117915. 3

Question Number : 55 Question Id : 61198729984 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Please choose the correct option.

- A. Axial mixing and radial mixing are aided by baffles.
- B. Mixing efficiency is decreased due to baffles.
- C. Power consumption rises due to baffles.
- D. Vortex formation is reduced due to baffles.

Choose the **correct** answer from the options given below:

- 1. A and B Only
- 2. B and D Only
- 3. A, C and D Only
- 4. B, C and D Only

Options :

- 611987117917. 1
- 611987117918. 2
- 611987117919. 3
- 611987117920. 4

Question Number : 56 Question Id : 61198729985 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Please choose correct answer

- A. At high temperature radiation is significant.
- B. Heat transfer due to radiation is reduced by shield.
- C. Flow regime is predicted by Reynold number.
- D. No impact of temperature on total heat transfer coefficient.

Choose the **correct** answer from the options given below:

- 1. A, B and C Only
- 2. B, C and D Only
- 3. A, B and D Only
- 4. C and D Only

Options :

- 611987117921. 1

611987117922. 2

611987117923. 3

611987117924. 4

Question Number : 57 Question Id : 61198729986 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Please choose correct option.

- A. Cellulose is not digested by human.
- B. Reaction equilibrium is shifted by enzymes.
- C. Aerobic conditions are responsible for TCA cycle.
- D. Branched polymer chain of glucose in plants is glycogen.

Choose the **correct** answer from the options given below:

- 1. A, B and D Only
- 2. B, C and D Only
- 3. A, B and C Only
- 4. C, A and D Only

Options :

611987117925. 1

611987117926. 2

611987117927. 3

611987117928. 4

Question Number : 58 Question Id : 61198729987 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Please choose correct option

- A. Top and bottom product contain non-key components.
- B. Minimum reflux ratio is determined using Underwood equation.
- C. Throughout the column relative volatility is constant.
- D. Separation is defined by heavy and light components.

Choose the **correct** answer from the options given below:

- 1. A and B Only
- 2. A, B and D Only
- 3. B and C Only
- 4. A, C and D Only

Options :

- 611987117929. 1
- 611987117930. 2
- 611987117931. 3
- 611987117932. 4

Question Number : 59 Question Id : 61198729988 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

For a chemical reaction $A \rightleftharpoons B$, the necessary conditions for the state of equilibrium is/are,

- A. $C_A = C_B$
- B. $\mu_A = \mu_B$
- C. $P_A = P_B$
- D. $G_A = G_B$
- E. $H_A = H_B$

Choose the **correct** answer from the options given below:

- 1. A and C Only
- 2. B and D Only
- 3. D and E Only
- 4. E Only

Options :

- 611987117933. 1
- 611987117934. 2
- 611987117935. 3
- 611987117936. 4

Question Number : 60 Question Id : 61198729989 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The cross linked polyethylene have better/higher properties than poly ethylene.

- A. Heat resistant
- B. Solubility
- C. Tg
- D. Processibility
- E. Impact strength

Choose the **correct** answer from the options given below:

1. A and E Only
2. A, C and E Only
3. A and C Only
4. B and D Only

Options :

- 611987117937. 1
- 611987117938. 2
- 611987117939. 3
- 611987117940. 4

Question Number : 61 Question Id : 61198729990 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

The thermoplastics polymers differ from thermosetting polymers by

- A. High tensile strength
- B. 3-D chain structure
- C. Linear/branched chains
- D. Reprocessibility

Choose the **correct** answer from the options given below:

1. A and B Only
2. C and B Only
3. C and D Only
4. D and B Only

Options :

- 611987117941. 1
- 611987117942. 2
- 611987117943. 3
- 611987117944. 4

Question Number : 62 Question Id : 61198729991 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Which of the following is not a rubber?

- A. Plasticized PVC
- B. Neoprene
- C. Polyisoprene
- D. NBR
- E. Dacron

Choose the **correct** answer from the options given below:

- 1. A and B Only
- 2. C and D Only
- 3. B and E Only
- 4. A and E Only

Options :

- 611987117945. 1
- 611987117946. 2
- 611987117947. 3
- 611987117948. 4

Question Number : 63 Question Id : 61198729992 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Select the incorrect statements:-

- A. The liquid fuels consists of hydrocarbons.
- B. A bomb calorimeter is used to find low calorific value (LCV) of the fuels.
- C. The gaseous fuels do not produce ash or smoke.
- D. The solid fuels have higher efficiency than liquid fuels.

Choose the **correct** answer from the options given below:

- 1. B and D Only
- 2. A and D Only
- 3. B and C Only
- 4. C Only

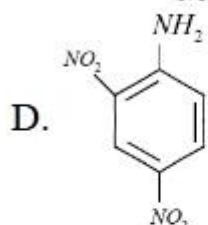
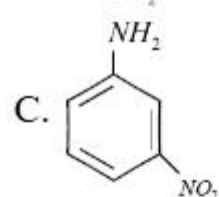
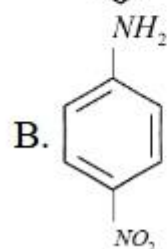
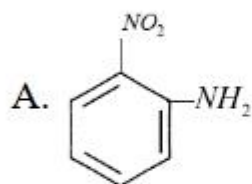
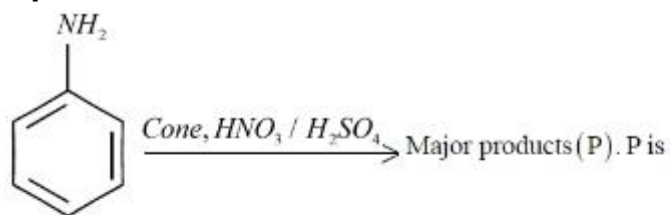
Options :

- 611987117949. 1
- 611987117950. 2

611987117951. 3

611987117952. 4

Question Number : 64 Question Id : 61198729993 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical



Choose the **correct** answer from the options given below:

1. A Only
2. B and C Only
3. A and B Only
4. C and D Only

Options :

611987117953. 1

611987117954. 2

611987117955. 3

611987117956. 4

Question Number : 65 Question Id : 61198729994 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the LIST-I with LIST-II

LIST-I		LIST-II	
A.	Waste water plant sludge	I.	Making dry ice
B.	Ash from electric power plant	II.	Nullification and revival for recycling
C.	CO ₂ released via fermentation	III.	Biogas yield
D.	Acid released from industry	IV.	Cement raw material

Choose the **correct** answer from the options given below:

1. A-III, B-IV, C-I, D-II
2. A-II, B-III, C-IV, D-I
3. A-IV, B-II, C-III, D-I
4. A-I, B-III, C-II, D-IV

Options :

611987117957. 1
611987117958. 2
611987117959. 3
611987117960. 4

Question Number : 66 Question Id : 61198729995 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the LIST-I with LIST-II

LIST-I		LIST-II	
A.	Impeller	I.	Fluid motion occurring poorly.
B.	Cavitation	II.	Energy is provided to fluid via rotation.
C.	Priming (PRIMING)	III.	Vapour bubble collapse and formation.
D.	Dead Zone	IV.	Clearing suction line of air before start.

Choose the **correct** answer from the options given below:

1. A-II, B-I, C-III, D-IV
2. A-III, B-II, C-IV, D-I
3. A-II, B-III, C-IV, D-I
4. A-IV, B-I, C-III, D-II

Options :

- 611987117961. 1
- 611987117962. 2
- 611987117963. 3
- 611987117964. 4

Question Number : 67 Question Id : 61198729996 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the LIST-I with LIST-II

LIST-I		LIST-II	
A.	Water is boiling in open vessel	I.	Conduction in one dimension.
B.	At night exchange of heat between atmosphere and earth	II.	Conduction and convection occurring simultaneously.
C.	Loss of heat occurring through wall of furnace	III.	Thermal radiation.
D.	Heat sink used to cool circuit component	IV.	Dominant natural convection.

Choose the **correct** answer from the options given below:

- 1. A-II, B-III, C-I, D-IV
- 2. A-III, B-IV, C-II, D-I
- 3. A-IV, B-III, C-I, D-II
- 4. A-I, B-II, C-IV, D-III

Options :

- 611987117965. 1
- 611987117966. 2
- 611987117967. 3
- 611987117968. 4

Question Number : 68 Question Id : 61198729997 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the **LIST-I** with **LIST-II**

LIST-I		LIST-II	
A.	Quaternary structure	I.	Folding of protein in wet environment
B.	Hydrophobic interaction	II.	Multiple polypeptide chain assembly
C.	Crabtree effect	III.	Oxygen causes glycolysis suppression
D.	Pasteur effect	IV.	High glucose causes respiration inhibition

Choose the **correct** answer from the options given below:

1. A-II, B-III, C-I, D-IV
2. A-II, B-I, C-III, D-IV
3. A-IV, B-II, C-I, D-III
4. A-III, B-IV, C-II, D-I

Options :

611987117969. 1
611987117970. 2
611987117971. 3
611987117972. 4

Question Number : 69 Question Id : 61198729998 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the **LIST-I** with **LIST-II**

LIST-I		LIST-II	
A.	Gilliland correlation	I.	With time no accumulation
B.	Relative volatility	II.	Difficulty in separation measurement
C.	Steady state diffusion	III.	Separation ease
D.	Number of transfer unit (NTU)	IV.	Reflux Ratio and stages relation

Choose the **correct** answer from the options given below:

1. A-IV, B-III, C-I, D-II
2. A-I, B-IV, C-II, D-III
3. A-II, B-I, C-IV, D-III
4. A-III, B-II, C-IV, D-I

Options :

611987117973. 1

611987117974. 2

611987117975. 3

611987117976. 4

Question Number : 70 Question Id : 61198729999 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the LIST-I with LIST-II

LIST-I		LIST-II	
A.	Entropy	I.	$\left. \frac{\partial U}{\partial T} \right _V$
B.	C_p	II.	$\left. \frac{\partial T}{\partial P} \right _H$
C.	C_V	III.	$\frac{\partial q}{T}$
D.	Joule-Thomson Expansion Co-efficient	IV.	$\left. \frac{\partial H}{\partial T} \right _P$

Choose the **correct** answer from the options given below:

1. A-III, B-IV, C-II, D-I
2. A-III, B-I, C-II, D-IV
3. A-IV, B-III, C-I, D-II
4. A-III, B-IV, C-I, D-II

Options :

611987117977. 1

611987117978. 2

611987117979. 3

611987117980. 4

Question Number : 71 Question Id : 61198730000 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the **LIST-I** with **LIST-II**

LIST-I		LIST-II	
A.	Polybutadiene	I.	Resin
B.	Polypropylene	II.	Fibre
C.	PF (Phenol formaldehyde)	III.	Rubber
D.	Nylon 66	IV.	Plastics

Choose the **correct** answer from the options given below:

1. A-I, B-II, C-III, D-IV
2. A-II, B-I, C-IV, D-III
3. A-IV, B-III, C-II, D-I
4. A-III, B-IV, C-I, D-II

Options :

611987117981. 1

611987117982. 2

611987117983. 3

611987117984. 4

Question Number : 72 Question Id : 61198730001 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the **LIST-I** with **LIST-II**

LIST-I		LIST-II	
A.	Isothermal	I.	$ds = 0$
B.	Isochoric	II.	$du = 0$
C.	Adiabatic reversible	III.	$dw = 0$
D.	Adiabatic	IV.	$dq = 0$

Choose the **correct** answer from the options given below:

1. A-III, B-II, C-I, D-IV
2. A-I, B-II, C-III, D-IV
3. A-IV, B-III, C-II, D-I
4. A-II, B-III, C-I, D-IV

Options :

611987117985. 1

611987117986. 2

611987117987. 3

611987117988. 4

Question Number : 73 Question Id : 61198730002 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the **LIST-I** with **LIST-II**

LIST-I		LIST-II	
A.	PU	I.	Oil seal
B.	UPVC	II.	Tyre
C.	NBR	III.	Shoe-sole
D.	NR	IV.	Window-panel

Choose the **correct** answer from the options given below:

1. A-III, B-IV, C-I, D-II
2. A-I, B-II, C-III, D-IV
3. A-I, B-III, C-IV, D-II
4. A-IV, B-I, C-II, D-III

Options :

611987117989. 1

611987117990. 2

611987117991. 3

611987117992. 4

Question Number : 74 Question Id : 61198730003 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the LIST-I with LIST-II

LIST-I Fuels		LIST-II Calorific Value (kJ/)	
A.	Peat	I.	45000
B.	Petrol	II.	30000
C.	Anthracite coal	III.	50000
D.	Natural gas	IV.	6500

Choose the **correct** answer from the options given below:

1. A-IV, B-III, C-II, D-I
2. A-IV, B-I, C-II, D-III
3. A-I, B-II, C-III, D-IV
4. A-III, B-II, C-IV, D-I

Options :

611987117993. 1
611987117994. 2
611987117995. 3
611987117996. 4

Question Number : 75 Question Id : 61198730004 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Is Question Mandatory : No Single Line Question Option : No Option Orientation : Vertical

Match the LIST-I with LIST-II

LIST-I		LIST-II	
A.	Isothermal process	I.	$dU = 0$
B.	Adiabatic reversible process	II.	$dG = 0$
C.	Chemical equilibrium	III.	$dS = 0$
D.	Joule-Thomson expansion process	IV.	$dH = 0$

Choose the **correct** answer from the options given below:

1. A-III, B-I, C-II, D-IV
2. A-I, B-III, C-II, D-IV
3. A-II, B-III, C-IV, D-I
4. A-III, B-II, C-IV, D-I

Options :

611987117997. 1

611987117998. 2

611987117999. 3

611987118000. 4