

B.Tech./Sem-I/Mid-Term Exam-2022: Engineering Chemistry-I

dasarnab187@gmail.com [Switch accounts](#)



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20 MCQs-1 Mark each

Choose the correct answer from the given options.

Bergius process for manufacture of synthetic petroleum involves

1 point

- ☐ Hydrogenation of aromatics hydrocarbons
- ☐ Dehydrogenation of alkenes
- ☐ Hydrogenation of vegetables oils
- ☒ Hydrogenation of coal

Clear selection

In which case bond order increases?

1 point

- ☒ O_2 changes to O_2^+
- ☐ N_2 changes to N_2^+
- ☐ both first and second
- ☐ none of the above

Clear selection



In the formation of N_2^+ from N_2 molecule the electron is removed from 1 point

- ☐ σ^* -orbital
- ☒ σ -orbital
- ☐ π^* -orbital
- ☐ π -orbital

Clear selection

Acetylene and synthesis gas are examples of _____ 1 point

- ☐ Liquid fuels
- ☐ Gaseous fuels
- ☐ Primary gaseous fuels
- ☒ Secondary gaseous fuels

Clear selection

Which type of coal gives more amount of heat after combustion? 1 point

- ☐ Bituminous
- ☐ Lignite
- ☒ Anthracite
- ☐ Peat

Clear selection



Which of the following is an example of three dimensional polymer?

1 point

- ☐ Nylon-6,6
- ☒ Phenolic resins
- ☐ Neoprene
- ☐ Polystyrene

Clear selection

Fixed carbon in coal is defined as

1 point

- ☒ Hundred minus the percentage of volatile matter, ash and moisture
- ☐ The total quantity of carbon present in the coal
- ☐ The one which is present in the residue after combustion
- ☐ That presents in volatile matters

Clear selection

0.3 g of coal sample on Kjeldahl's analysis gave ammonia to just neutralize 30 ml of 0.1 NH_2SO_4 . Calculate the percentage of nitrogen in the coal sample.

1 point

- ☐ 50%
- ☐ 10%
- ☐ 12%
- ☒ 14%

Clear selection



Which of the following is paramagnetic?

1 point

- ☒ O₂
- ☐ O₂²⁻
- ☐ O₂²⁺
- ☐ N₂

Clear selection

The monomers of Buna-S are

1 point

- ☐ 1,3-butadiene and propene
- ☐ 1,3-butadiene and vinyl cyanide
- ☐ 2,3-butadiene and styrene
- ☒ 1,3-butadiene and styrene

Clear selection

Which type of initiator are used up in cationic polymerisation reaction-

1 point

- ☒ BF₃ · H₂O
- ☐ NaNH₂ · H₂O
- ☐ H₂O₂
- ☐ All of these

Clear selection



Condensation polymers are formed with the elimination of —

1 point

- ☐ O₂
- ☐ FeSO₄
- ☐ BF₃
- ☒ H₂O

Clear selection

Which type of fuel is lignite?

1 point

- ☐ Gaseous fuel
- ☒ Primary fuel
- ☐ Secondary fuel
- ☐ Liquid fuel

Clear selection

In the molecular orbital diagram of O₂⁺ ion the highest occupied orbital is

1 point

- ☐ π^*
- ☐ σ^*
- ☒ π
- ☐ σ

Clear selection



In a polymer, there are 100 molecules of molecular weight 100, 200 molecules of molecular weight 1000 and 300 molecules of molecular weight 10000. The weight average molecular weight (M_w) of the polymer is

1 point

- ☐ 5.3×10^3
- ☒ 9.4×10^3
- ☐ 1.7×10^3
- ☐ None of them

Clear selection

Volatile matters can be removed while doing the proximate analysis at temperature

1 point

- ☒ 950 °C
- ☐ 100 °C
- ☐ 500 °C
- ☐ All the above

Clear selection

Which one of the following will have distorted octahedral shape?

1 point

- ☐ XeOF₄
- ☐ SF₆
- ☐ IF₇
- ☒ XeF₆

Clear selection



The gross and net calorific value of a fuel is equal. It means that its -

1 point

- ☐ Carbon content is very low
- ☐ Ash content is zero
- ☐ Under no circumstances
- ☒ Hydrogen/hydrogen compound content is zero

Clear selection

Which of the following is correct?

1 point

- ☒ Vulcanization increases the elasticity and decreases the solubility of rubber
- ☐ Vulcanization decreases both the elasticity and solubility of rubber
- ☐ Vulcanization increases both the elasticity and solubility of rubber
- ☐ Vulcanization decreases the elasticity and increases the solubility of rubber

Clear selection

Number of electron pairs present in I_3^- -

1 point

- ☐ Two lone pairs & two bond pairs
- ☐ One lone pair & two bond pairs
- ☒ Three lone pairs & three bond pairs
- ☐ Three lone pairs & two bond pairs

Clear selection

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