

10/08_EC-II_FE_Sem II (R-19)_Inst Name

University of Mumbai

* Required

EC-II_PART-A

1. *

Green route of Adipic acid synthesis illustrates which of the following principle of Green Chemistry?

Mark only one oval.

- ☐ Use of renewable feedstock.
- ☐ Avoid chemical derivatization.
- ☐ Avoid use of auxiliary substances.
- ☐ Degradation of the product after the use.

2. *

Spectroscopy, in which the interaction of U.V. light with the molecules is studied, is known as ____.

Mark only one oval.

- ☐ Vibrational spectroscopy
- ☐ Vibrational rotational spectroscopy
- ☐ Electronic spectroscopy
- ☐ Microwave spectroscopy

3. *

The net calorific value (NCV) of the coal having following percentage composition by weight is _____.

C = 68%, H = 12%, O = 8%, N = 6%, S = 4%, Ash = 2%

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☐ 9739.50 kcal/kg

☐ 9379 kcal/kg

☐ 8457.54 kcal/kg

☐ 8745.04 kcal/kg

4. *

Which of the following is the percentage atom economy with respect to CH_3OH for the reaction? $\text{CH}_3\text{Cl} + \text{KOH (aq.)} \rightarrow \text{CH}_3\text{OH} + \text{KCl}$

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☐ 30.04%

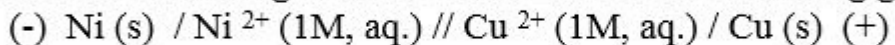
☐ 39.92%

☐ 50.04%

☐ 60.08%

5. *

Which of the following is the standard EMF of the following galvanic cell?



[Given: $E^\circ \text{Ni} = -0.257\text{V}$ and $E^\circ \text{Cu} = 0.337\text{V}$]

Mark only one oval.

☐ 0.08V

☐ 0.167V

☐ 0.594V

☐ 0.761V

6. *

Which of the following is not true about catalytic reactions?

Mark only one oval.

☐ They can reduce time required for completion of the reaction

☐ They can reduce percentage atom economy of the desired product.

☐ They can reduce number of steps in the multistep synthesis.

☐ They can reduce energy requirement of the reaction.

7. *

Which of the following is the nature of metal oxide film produced by the alkali metals?

Mark only one oval.

☐ Porous

☐ Unstable

☐ Volatile

☐ Stable

8. *

Rate of metallic corrosion will be relatively higher in which of the following case?

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- ☐ When surface area of anode is greater than surface area of cathode.
- ☐ When surface area of cathode is greater than surface area of anode.
- ☐ When surface area of anode is equal to surface area of cathode.
- ☐ It is independent of anodic and cathodic areas.

9. *

In green route, Ibuprofen is synthesized from which of the following starting molecule?

Mark only one oval.

- ☐ L- Tryptophan
- ☐ D-Glucose
- ☐ Isobutyl benzene
- ☐ Aniline

10. *

2.5 g of coal sample was kjeldhalized and evolved NH_3 was absorbed in 50 ml of 0.5N H_2SO_4 . To neutralize excess of acid 15 ml of 0.5N NaOH was required. Which of the following is the percentage of the nitrogen in the sample of coal?

Mark only one oval.

- ☐ 2.4%
- ☐ 4.9 %
- ☐ 9.8 %
- ☐ 19.6 %

11. *

When a drop of water is placed over the surface of the pure metal then according to differential aeration theory of corrosion, _____.

Mark only one oval.

- ☐ The area below the drop of water receives protection.
- ☐ The area below the drop of water behaves as anode.
- ☐ The area below the drop of water behaves as cathode.
- ☐ The area below the drop of water remains unaffected.

12. *

Which of the following is assigned zero value on the octane scale?

Mark only one oval.

- ☐ 1-methyl naphthalene
- ☐ n-heptane
- ☐ cetane
- ☐ iso-octane

13. *

According to sacrificial anode method, the metallic object to be protected from corrosion should be connected to the metal having _____.

Mark only one oval.

- ☐ Reduction potential higher than the object.
- ☐ Reduction potential same as the object.
- ☐ Reduction potential lower than the object.
- ☐ Independent of reduction potential of the object.

14. *

A sample of hydrocarbon contains C = 80% and H = 20% by weight. The weight of the oxygen required for complete combustion of 1 Kg of the above hydrocarbon is _____.

Mark only one oval.

- ☐ 2.13 kg
- ☐ 3.73 kg
- ☐ 5.86 kg
- ☐ 16.21 kg

15. *

Caustic embrittlement in the boiler is the example of which type of corrosion?

Mark only one oval.

- ☐ Intergranular corrosion
- ☐ Pitting corrosion
- ☐ Galvanic corrosion
- ☐ Stress corrosion

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