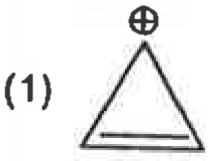
CHEMISTRY

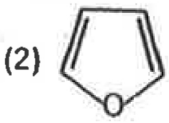
AAKASH INSTITUTE ENGLISH

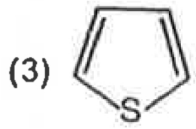
MOCK TEST 31

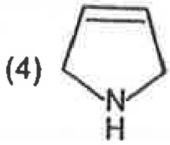
Example

1. Which among the following is not an aromatic species?

A. 

B. 

C. 

D. 

Answer: D

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2. The species which will not show hyperconjugation is

A. $CH_3C^+H_2$

B. $(CH_3)_3CC^+H_2$

C. $CH_3CH_2C^+H_2$

D. $CH_3C^+HCH_2$

Answer: B

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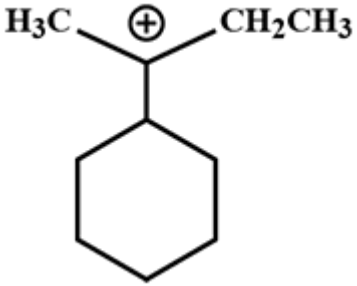
3. Number of hyperconjugative structure for



A. 3

B. 6

C. 9

D. 5

Answer: C

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4. The shape of CH_3^+ and CH_3^- is respectively

A. plner,planer

B. plner,pyramidal

C. pyramidal,pyramidal

D. pyramidal,planer

Answer: B

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5. Non-aromatic compound is

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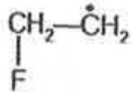
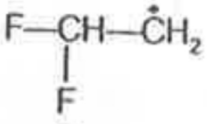
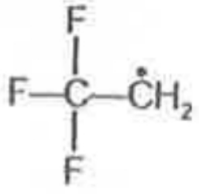
6. Most stable radical among the following is

A. 

B. 

C. 

D. 

Answer: A

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7. In the given species, carbanion is sp^3 hybridised?

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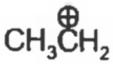
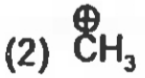
8. Which of the following carbocation is most stable?

A. 

B. 

C. 

D. 

Answer: C

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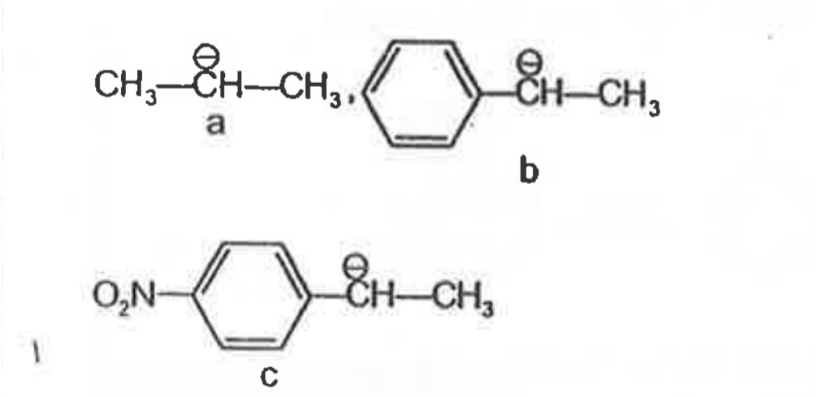
9. The correct stability order of the given carbanions is



A. $a > b > c$

B. $b > c > a$

C. $c > b > a$

D. $c > a > b$

Answer: C

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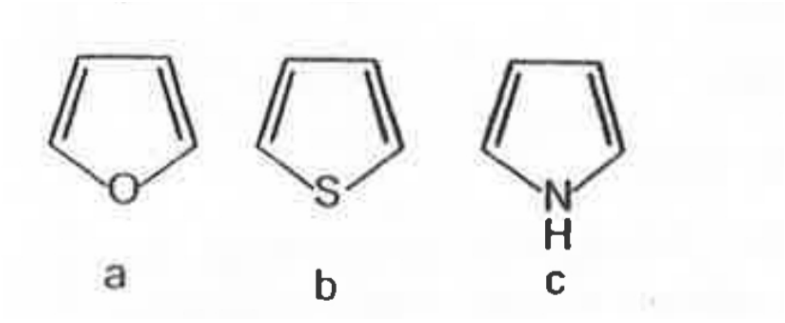
10. Aromaticity order for the following aromatic compound will be



A. $a > b > c$

B. $c > b > a$

C. $b > c > a$

D. $c > a > b$

Answer: C

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11. An octahedral complex is prepared by mixing CoCl3 and NH3 in the molar ratio 1 : 4, 0.1 m solution of this complex was found to freeze at

0.372°C. What is the formula of the complex? Given that molal depression constant (Kf) for water = 1.86°C/m.

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12. Identify the incorrect characteristic of carbenes,: CR_2

A. contain carbon atom with only six valence electrons

B. neutral species

C. very reactive

D. normally neocleophylic

Answer: D

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13. Which is the correct stability order for the given carbonium ions?

A.Methyl B.ethyl C.iso-propyl D.tert-butyl

A. $b > a > c > d$

B. $d > c > a > b$

C. $a > b > c > d$

D. $d > c > b > a$

Answer: B

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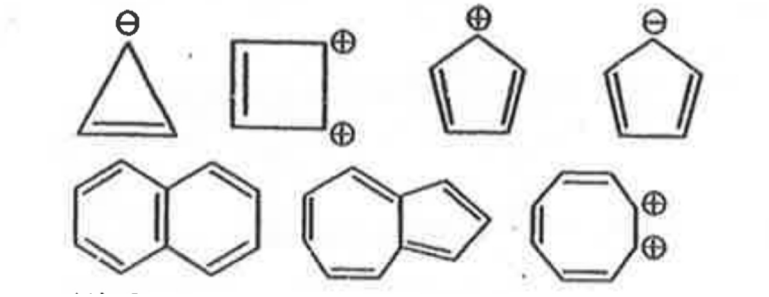
14. Among the following species, how many are aromatic in nature?



A. 5

B. 4

C. 6

D. 3

Answer: A

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15. Peroxide plays a vital role in producing

A. carbocation

B. carboanion

C. free radical

D. carbene

Answer: C

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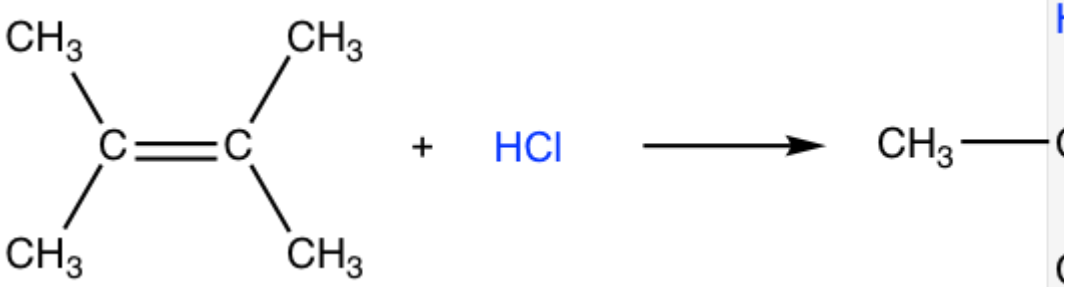
16.



Products formed in the above reaction are result of

A. substitution

B. elimination

C. addition

D. elimination and addition

Answer: B

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17. An aldehyde reacts with KCN to form cyanohydrin. In this reaction

A. CN^- acts as nucleophile and does nucleophilic addition

B. CN^- acts as nucleophile and does electrophilic addition

C. CN^- acts as an electrophilic and does electrophilic addition

D. CN^- acts as nuclcophile and does nucleophile substitution

Answer: A

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18. Why do alkenes prefer to undergo electrophilec addition reaction while arenes prefer electrophilic substitution reactions ? Explain.

A. Increase of unsaturation number in product W.r.t. reactant

B. Decrease of unsaturation number in product w.r.t reactant

C. Formation of new bonds without breaking any bond

D. Both (2) and (3)

Answer: B

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19. What are homogeneous catalysts? state one example

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20. Why are alkyl halides insoluble in water?

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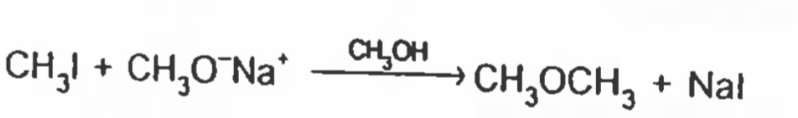
21. The following reaction falls under the category of



A. Nucleophilic addition reaction

B. Nucleophilic substitution reaction

C. Elimination reaction

D. Free radical reaction

Answer: B

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22. The intermediate formed in the electrophilic addition of HBr to propene is a

A. Carbocation

B. Carbanion

C. Carbene

D. Free radical

Answer: A

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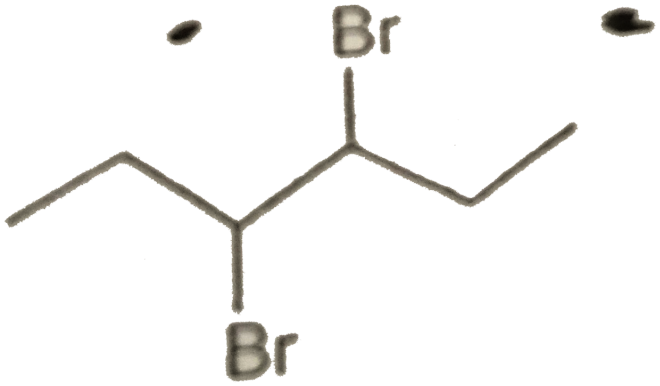
23. How many elimination products are formed when the given dibromo compound is heated with 2 equivalent of sodium ethoxide in ethanol ?



A. 1

B. 2

C. 3

D. 4

Answer: C

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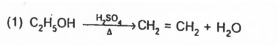
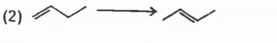
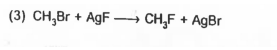
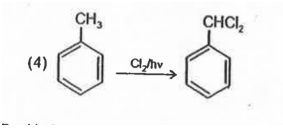
24. Which one of the following reaction is an example of free radical substitution reaction?

A. 

B. 

C. 

D. 

Answer: D

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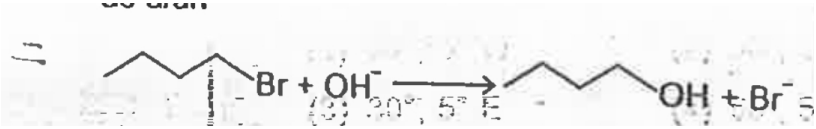
25. Hydroxide ion in the following reaction behaves as a/an



A. Catalyst

B. Electrophile

C. Nucleophile

D. Reducing agent

Answer: C

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26. Alkenes react rapidly with bromine in non-nucleophilic solvents to form vicinal dibromides.This reaction can be best described as

A. Electrophilic addition

B. Nucleophilic addition

C. Nucleophilic substitution

D. Electrophilic substitution

Answer: A

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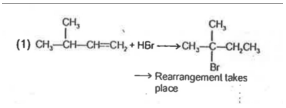
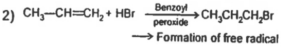
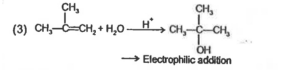
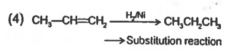
27. Identify the incorrect match among the following

A. 

B. 

C. 

D. 

Answer: D

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28. In the following elimination reaction, hybridisation of carbon atom to which halogen is attached changes from

$$CH_3CH_2CH_2Br \xrightarrow{\text{alc. KOH}} CH_3CH = CH_2$$

A. sp^2 to sp^3

B. sp^3 to sp^2

C. sp^2 to sp^2

D. sp^3 to sp^3

Answer: B

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29. Which element cannot be detected by Lassaigne's test?

A. Nitrogen

B. Sulphur

C. Oxygen

D. Phosphorus

Answer: C

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30. On treating sodium fusion extract with sodium nitroprusside, a violet colour was observed. This indicates the presence of which element in the organic compound?

A. Nitrogen

B. Sulphur

C. Chlorine

D. Bromine

Answer: B

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31. In a Carius tube, 0.25 g of an organic compound gave 0.699 g of barium sulphate. What is the percentage of sulphur in the compound? (Atomic weight of Ba = 137)

A. 42.5

B. 35.5

C. 45.2

D. 38.4

Answer: D

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32. During estimation of nitrogen present in an organic compound using Kjeldahl's method, the NH_3 evolved from 0.25 g of the compound was neutralised by 10 ml of 1.25N H_2SO_4 What is the percentage of nitrogen in the organic compound?

A. 0.56

B. 0.35

C. 0.7

D. 0.66

Answer: C

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33. Boiling point is highest for which compound?

A. Pentane

B. 2-Methylbutane

C. 2, 2-dimethylpropane

D. 2-Methylpropane

Answer: A

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34. Number of moles of oxygen required for the complete combustion of butane are

A. 6

B. 7.5

C. 6.5

D. 7

Answer: C

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35. A mixture of two volatile liquids having little difference in their boiling points can be purified by

A. Distillation

B. Crystalization

C. Column chromatography

D. Fractional distillation

Answer: D

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36. In Duma's method for quantitative estimation of nitrogen, 0.5 g of an organic compound gave 100 ml of nitrogen collected at 27°C temperature and 680 mm of Hg pressure. What is the percentage composition of nitrogen in the sample? [Given aqueous tension at 27°C = 20mm Hg]

A. 0.2525

B. 0.1525

C. 0.2875

D. 0.1975

Answer: D

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