UNIT TEST-04

Subject : Chemistry
Class : XII

Q.1 (1)	**Q.2** (4)	**Q.3** (1)	**Q.4** (2)	**Q.5** (1)	**Q.6** (3)	**Q.7** (1)	**Q.8** (1)	**Q.9** (3)	**Q.10** (3)
Q.11 (4)	**Q.12** (2)	**Q.13** (4)	**Q.14** (1)	**Q.15** (1)	**Q.16** (1)	**Q.17** (3)	**Q.18** (1)	**Q.19** (3)	**Q.20** (1)
Q.21 (2)	**Q.22** (3)	**Q.23** (3)	**Q.24** (3)	**Q.25** (4)	**Q.26** (4)	**Q.27** (1)	**Q.28** (4)	**Q.29** (4)	**Q.30** (2)
Q.31 (4)	**Q.32** (4)	**Q.33** (2)	**Q.34** (1)	**Q.35** (1)	**Q.36** (4)	**Q.37** (4)	**Q.38** (4)	**Q.39** (2)	**Q.40** (3)
Q.41 (2)	**Q.42** (4)	**Q.43** (2)	**Q.44** (1)	**Q.45** (1)	**Q.46** (3)	**Q.47** (2)	**Q.48** (1)	**Q.49** (2)	**Q.50** (1)

Q.1 (1)
carbylamine test is given by only Primary Amines

Q.2 (4)

$$\underset{\text{Methyl isocyanide}}{CH_3-NC} \xrightarrow{\text{Reduction}} \underset{\text{Dimethyla mine(2°)}}{CH_3-NH-CH_3}$$

Q.3 (1)
Grabriel's synthesis : Phthalimide is reacted with KOH to form potassium phthalimide. The potassium salt is treated with an alkyl halide. The product N-alkyl phthalimide is put to hydrolyse with hydrochloric acid, then primary amine is formed.

Q.4 (2)

$$\underset{\underset{\underset{O}{\|}}{CH_3CH_2C-NH_2}}{} \xrightarrow{Br_2/KOH} \underset{\text{ethan amine}}{CH_3CH_2NH_2}$$

Q.5 (1)

Q.6 (3)

(1) $CH_3-CN \xrightarrow{LiAlH_4} CH_3CH_2NH_2$ (Primary Amine)

(2) $CH_3-CONH_2 \xrightarrow{Br_2} CH_3-NH_2$ (Primary Amine)

(3) $CH_3NC \xrightarrow{LiAlH_4} CH_3-NH-CH_3$ (Secondary Amine)

(4) $CH_3CONH_2 \xrightarrow{LiAlH_4} CH_3-CH_2-NH_2$ (Primary Amine)

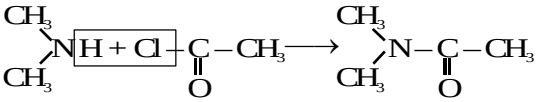
Q.7 (1)

is most basic. Lone pair is on sp^3 hybridised nitrogen (Bridge head N).

Q.8 (1)
Carbylamine reaction is given by aliphatic and aromatic primary amine hence, it can be used for the distinguish of primary amine with secondary and tertiary amine. In this reaction, a primary amine reacts with chloroform and alcoholic KOH to give poisonous substance isocyanide.

$$\underset{\text{Primary amine}}{RNH_2} + CHCl_3 + 3KOH\,(alc.) \xrightarrow{\Delta} \underset{\text{alkyl isocyanide}}{RNC} + 3KCl + 3H_2O$$

Q.9 (3)

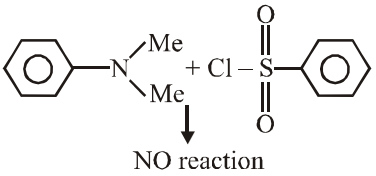


Q.10 (3)

$$\underset{\underset{\underset{O}{\|}}{CH_3-C-NH_2}}{} \xrightarrow{LiAlH_4} CH_3-CH_2-NH_2$$

Q.11 (4)

Q.12 (2)



Q.13 (4)
CH_3CONH_2 on treatment with metallic sodium produce hydrogen.

$$CH_3CONH_2 + Na \rightarrow CH_3CONH^-Na^+ + \frac{1}{2}H_2 \uparrow$$

Q.14 (1)

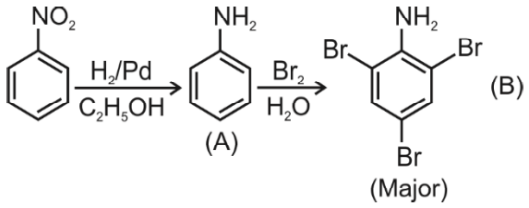
Q.15 (1)

$$R-NH_2 + CHCl_3 + 3KOH \rightarrow R-N \equiv C + 3KCl + 3H_2O$$

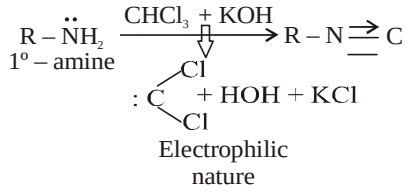
This reaction is known as carbylamine reaction (isocyanide test)

Q.16 (1)
Both statements are true

Q.17 (3)

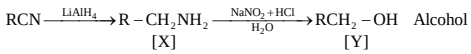


Q.18 (1)



[Carbylamine reaction (Isocyanide test)]

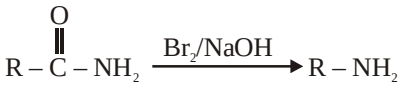
Q.19 (3)



Q.20 (1)

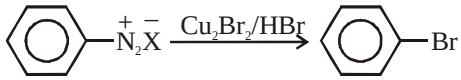
Q.21 (2)

• Hoffmann Bromamide Degradation reaction.

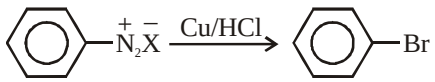


• Carbylamine reaction

• Sandmeyer reaction



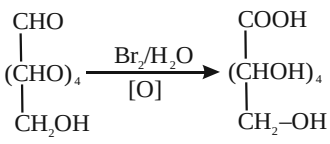
• Gattermann reaction



Q.22 (3)

Q.23 (3)

This reaction confirms presence of aldehyde group. Because for formation of gluconic acid free aldehyde group must be present.



Glucose Gluconic Acid

Q.24 (3)

Q.25 (4)

Here, the -OH of hemiacetal group is equatorial therefore, it is a β-pyranose of an aldohexose.

Q.26 (4)

Reducing sugars that exist in hemiacetal and hemiketal forms, undergo mutarotation in aqueous solution.
Among the given carbohydrates, only sucrose is a non-reducing sugar as in it the hemiacetal and hemiketal groups of glucose and fructose are linked together through O-atom and thus, not free. Due to the absence of free hemiacetal or hemiketal group, sucrose does not exhibit mutarotation.

Q.27 (1)

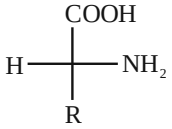
Q.28 (4)

Q.29 (4)

• Keratin and myosin are fibrous proteins.
• Insulin and albumins are globular proteins.

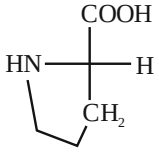
Q.30 (2)

Amino acid



Lysine –R group $NH_2(CH_2)_4-$

Proline



Serine $HO-CH_2-$
Phenylalanine $Ph-CH_2-$

Q.31 (4)

Vitamin $B_1 \rightarrow$ Beri – Beri
Vitamin $B_2 \rightarrow$ Cheilosis
Vitamin B12 $\rightarrow$ Pernicious anaemia
Vitamin $B_6 \rightarrow$ Convulsions

Q.32 (4)

Vitamin D is also known as sunshine vitamin.

Q.33 (2)

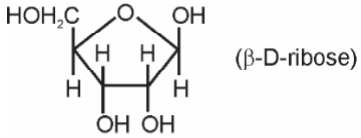
Synthesis of RNA/DNA from phosphoric acid, ribose and cytosine is given below

Thus ester linkages are at C_1' and C_5' of sugar molecule.

Q.34 (1)

Q.35 (1)

Sugar moiety present in RNA is called β-D-ribose



(β-D-ribose)

Q.36 (4)

Q.37 (4)

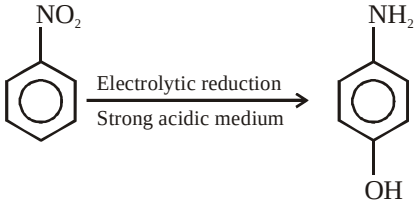
3 ' Amines will not form sulphonamides on reaction with Hinsberg′s Reagent.

Q.38 (4)

$R–C\equiv N \xrightarrow{DIBAL-H} RCHO$

DIBAL –H is used for partial reduction .

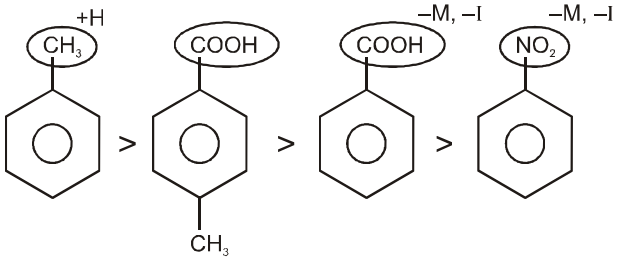
Q.39 (2)



(p-amino phenol)

Q.40 (3)

Decreasing reactivity order for bromination (E.S.R.)



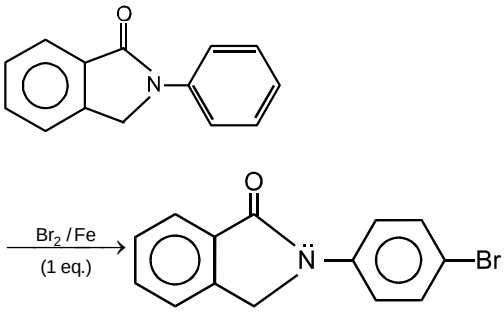
(I) (II) (III) (IV)

Q.41 (2)

In sulphonation SO_3 is electrophile species.

Q.42 (4)

Q.43 (2)



Q.44 (1)

Q.45 (1)

Sugar having free –OH group at anomeric carbon is reducing in nature.

Q.46 (3)

Vitamin B and C is water soluble vitamin.

Q.47 (2)

Q.48 (1)

Q.49 (2)

Adenine is present in DNA and RNA both.

Q.50 (1)

Adrenal glands are important endocrine glands in human-body. Its cortex part secretes the hormone 'cortisone'.