5. A compound with two or more asymmetric carbon atoms and having plane of symmetry is called ---

a) Meso compound b) Tautomeric compound

c) Racemic mixture d) Diastereomeric compound

6. How many optical isomers are possible for 2- butanol ?

a) 2 b) 4 c) 6 d) 8

7. Optical isomers that are mirror images of each other are called as ---

a) Distereoisomers **b) Enantiomers**

c) Metamers d) Tautomers

8. An equimolar mixture of two enantiomers is called …….

a)Enantiomeric compounds b) diastereomeric compounds

c) Racemic mixture c) Resolution

9. Which of the following is an example of monosaccharides ?

a) Sucrose b) Raffinose c) Starch **d) Glucose**

10. Which of the following is an example of polysaccharides ?

a) Sucrose b) Raffinose **c) Starch** d) Glucose

11. Glucose contains …….

a) an aldehyde group b) a ketonic group

c) six hydroxyl group d) a cyanide group

12. Sucrose is an example of ……

a) monosaccharides **b) disaccharides**

c) trisaccharides d) polysaccharides

13. Which of the following conversion is an example of Ruff degradation ?

a) Glucose to Arabinose b) Arabinose to glucose

c) Glucose to fructose d) Fructose to Glucose

14. Glucose contains ----- asymmetric (Chiral) carbons.

a) Two **b) Four** c) Six d) Eight

15. Conversion of glucose into mannose is an example of ----

a) Mutarotation **b) Epimerisation**

c) Hydrolysis d) Fermentation

16. Reduction of nitrobenzene with H_2/Ni gives ……

a) Benzene b) Phenol **c) Aniline** d) Toluene

17. Phenol react with ammonia in presence of $AlCl_3$ gives ……

a) Chlorobenzene **b) Aniline** c) Benzene d) Anisole

18. Aniline react with chloroform and alco. KOH gives ……

a) Benzene b) Phenol c) Toluene **d) Carbylamine**

19. Diazomethane on heated to give ……

a) Carbocation **b) Carbene** c) Nitrene d) Carbanion

20. Commercially urea is prepared from ……

a) CO & NH_3 b) CH_3COOH & NH_3

c) CO_2 & NH_3 d) HCHO & NH_3

21. Urea is the most important derivative of ……

a) carbolic acid **b) carbonic acid** c) carboxylic acid d) phenol

22. Urea is called as ……

a) carbolic acid b) carboxylic acid

c) carbamide d) None of these

23. Biuret is obtained by heating……

a) Benzene diazonium salt b) Aniline **c) Urea** d) Nitrobenzene

24. Maleic acid on cis hydroxylation using OsO_4 gives ……

a) Glycol **b) Tartaric acid** c) Glyceraldehydes d) Ethanol

25. $CH_3CHO \xrightarrow{SeO_2}$ A; Where A is -----

a)CH_3OH **b) OHC.CHO** c) CH_3CH_2OH d) CH_5COOH

26. $Os + O_2 \xrightarrow{Heat}$ A; Where A is -----

a) OsO_2 b) OsO_3 c) O_2 **d) OsO_4**

27. $HCOOH \xrightarrow{SeO_2}$ A + B ; Where A & B are -----

a) HCHO b) CH_3OH **c) CO_2 & H_2O** d) Both (a) and (b)

28. Which of the following does not belong to First Transition Series

a) Silver b) Cobalt c) Chromium d) Vanadium

29. The number of unpaired electrons in Cr^{+2} (Z=24)

a) 4 b) 2 c) 3 d) 1

30. The Expected magnetic moment of Ti^{3+} ion is

a) 4.90 b) 2.84 **c) 1.73** d) 0

31. In the first transition series, the highest oxidation state is exhibited by

a) Mn b) Cr c) Co d) Cu

32. The First Transition series comprisesof elements from

a) scandium to zinc b b) lanthanium to hafnium

c) yttrium to cadmium d) none of these

33. Mo and W belong to group of

a) Cu b) Mn c) Fe **d) Cr**

34. Atomic radii of third transition series, along the period

a) increases regularly b) decreases regularly

c) first increases and then decreases **d) first decreases and then increases**

35. Which of the following does not belong to lanthanides

a) Nd b) Tm **c) Cm** d) Ce

36. The principal oxidation state of lanthanides is

a)+2 **b)+3** c) +4 d) zero

37. Which lanthanide has the configuration $4f^7\ 5d^1\ 6s^2$

a) Sm **b) Gd** c) Eu d) Tb

38. Which of the following has smallest ionic size

a) La^{3+} b) Cd^{3+} c) Dy^{3+} **d) Lu^{3+}**

39. Which of the following trivalent lanthanide ions is not coloured

a) Er^{3+} **b) Yb^{3+}** c) Pm^{3+} d) Sm^{3+}

40. The Separation of lanthanides in ion-exchange method is based on

a) basicity of lanthanides b) oxidation state of the ion

c) solubility of their nitrates **d) size of the ions**