

# Online Examinations (Even Sem/Part-I/Part-II Examinations 2020 - 2021)

Course Name - --Chemistry

Course Code - BSC(CSE)202

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Answer all the questions. Each question carry one mark.

9. 1. What is the term related the energy required to remove an electron from an isolated gaseous atom in its ground state to produce a unipositive ion in its ground state ?

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- Electron affinity
- Electronegativity
- Ionization energy
- Bond energy

10. 2. Which form is most stable form of n butane

*Mark only one oval.*

- Gauche
- Eclipsed
- Partially eclipsed
- Staggered

11. 3. What is the axis of symmetry present in water molecule?

*Mark only one oval.*

- C<sub>2</sub>
- C<sub>3</sub>
- C<sub>4</sub>
- C<sub>6</sub>

12. 4. What is formed by reaction of ammonia with formaldehyde?

*Mark only one oval.*

- Hexamethylenediamine
- Adipic acid
- Urotrophine
- Aldol

13. 5. E1 reaction is best shown by..... degree alkyl halide

*Mark only one oval.*

1

2

3

4

14. 6. SN1 reaction proceeds through the formation of

*Mark only one oval.*

Carbon radicals

Carbanion

Carbocation

Carbene

15. 7. Cannizaro reaction is shown by the compound having how many alpha hydrogen

*Mark only one oval.*

0

1

2

3

16. 8. A tree in a garden is an example of which of the thermodynamic system ?

*Mark only one oval.*

- Open system
- Closed system
- Isolated system
- Homogenous system

17. 9. Which of the following is maintained a closed system ?

*Mark only one oval.*

- A walking man
- Hydrogen gas filled in a balloon
- A cup of tea
- A pond

18. 10. In an isothermal expansion of an ideal gas

*Mark only one oval.*

- $\Delta S=0$
- $\Delta V=0$
- $\Delta q=0$
- $\Delta T=0$

19. 11. 100g of ice at 0 °C was melted to 100g of water at 0 °C. Given latent heat of fusion of ice at 0 °C is 80 Cal per g. The  $\Delta U$  of the process is

*Mark only one oval.*

- 1000 Cal
- 2000 Cal
- 4000 Cal
- 8000 Cal

20. 12. For the reaction  $2\text{SO}_2(\text{g}) + \text{O}_2(\text{g}) = 2\text{SO}_3(\text{g})$

*Mark only one oval.*

- $\Delta H > \Delta U$
- $\Delta H = \Delta U$
- $\Delta H < \Delta U$
- $\Delta H = 1/\Delta U$

21. 13. In a reversible cyclic process the entropy change is

*Mark only one oval.*

- Positive
- Negative
- Zero
- None of these



22. 14. In a reversible cyclic process the internal energy \_\_\_\_\_ Which of the following holds right ?

*Mark only one oval.*

- Increases
- Decreases
- Remains unchanged
- Can not be predicted

23. 15. For a spontaneous process,

*Mark only one oval.*

- $\Delta G, P=0$
- $\Delta G, P>0$
- $\Delta G, P<0$
- $\Delta A, T=0$

24. 16. The relation between  $\Delta G$  of the cell reaction and emf  $E$  of the cell is given by

*Mark only one oval.*

- $\Delta G=nFE$
- $\Delta G=FE/n$
- $\Delta G=-nFE$
- $\Delta G=n/FE$

25. 17. Standard hydrogen electrode has been assigned to a potential of

*Mark only one oval.*

1.5 Volt

1.0 Volt

0 Volt

0.5 Volt

26. 18. A galvanic cell is used for the conversion of

*Mark only one oval.*

Chemical energy to heat energy

Electrical energy to chemical energy

Chemical energy to electrical energy

Heat energy to chemical energy

27. 19. Which one is true for a galvanic cell?

*Mark only one oval.*

The cell potential is always negative

$\Delta G$  for the cell reaction is positive

The cell potential is always positive

$\Delta G$  for the cell reaction is zero

28. 20. In normal hydrogen electrode the activity of  $H^+$  ion is

*Mark only one oval.*

0.2

2.0

1.0

0.1

29. 21. The entropy of the universe is

*Mark only one oval.*

Decreasing

Constant

Increasing

Dependent on conditions

30. 22. For an ideal gas undergoing isothermal reversible expansion which of the following is true

*Mark only one oval.*

$\Delta G = 1/\Delta A$

$\Delta G = 2\Delta A$

$\Delta G = \Delta A$

$\Delta G = 2/\Delta A$

31. 23. The stereoisomers which rotates the plain polarized light towards right is known as

*Mark only one oval.*

R

D

d

S

32. 24. Light having a single wavelength and whose electronic vector vibrate in a plane perpendicular to the propagation of light is called

*Mark only one oval.*

Monochromatic light

Ordinary light

Plain polarized light

Non-polarized light

33. 25. If a solution of a compound (30.0 g/100 mL of solution) has a measured rotation of  $+15^\circ$  in a 2 dm tube, the specific rotation is:

*Mark only one oval.*

$+50^\circ$

$+15^\circ$

$+25^\circ$

$+4.0^\circ$

34. 26. Let there be four substituents namely..... COOH, D, H and CONH<sub>2</sub> attached to the chiral carbon, which one will have highest priority sequence

*Mark only one oval.*

- D
- H
- COOH
- CONH<sub>2</sub>

35. 27. In case of  $\alpha$  amino acids which chiral carbon is taken to assign D,L nomenclature

*Mark only one oval.*

- First
- Second
- Last
- All of these

36. 28. Which is the least stable form of n-butane

*Mark only one oval.*

- Eclipsed
- Staggered
- Partially eclipsed
- Gauche

37. 29. In flying wedge projection formulae, horizontal bonds are projected .....

*Mark only one oval.*

- Above the plane of the paper
- Below the plane of the paper
- On the plane of the paper
- Both above and below plane of the paper

38. 30. In case of Newman projection formulae, the C atom facing the viewer is represented by

*Mark only one oval.*

- Circumference of circle
- Centre of Circle
- Both a and b
- Square

39. 31. Non superimposable mirror images are known as

*Mark only one oval.*

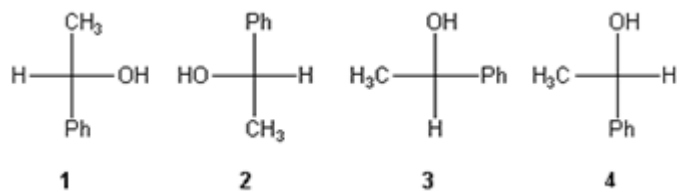
- Diastereomers
- Optical isomers
- Enantiomers
- Isomers

40. 32. Cis 2-butene and trans 2-Butene are

Mark only one oval.

- Configurational isomers
- Diastereoisomers
- Both Configurational isomers and Diastereoisomers
- Conformational isomers

41. 33. Which of the following Fischer projection is different from the others>



Mark only one oval.

- 1
- 2
- 3
- 4

42. 34. 1-butene on ozonolysis produces

Mark only one oval.

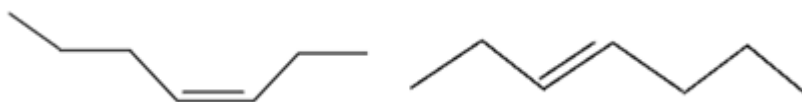
- Formaldehyde only
- propanal only
- Both Formaldehyde and propanal
- Acetone only

43. 35. Which reacts with Grignard reagent to produce 1° alcohol?

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- Acetaldehyde
- Propanal
- Methanal
- Acetone

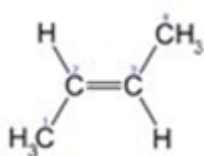
44. 36. Which of the following terms best describes the following pair of molecules?



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- Isomers
- Configurational isomers
- Geometrical isomers
- Constitutional isomers

45. 37. Assign configuration to the given compound



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- Z configuration
- R configuration
- E configuration
- S configuration



46. 38.

What is the major product of the reaction between  
 $\text{CH}_3\text{-CH}_2\text{-CH(NMe}_3\text{)-CH}_3$  with NaOH ?

*Mark only one oval.*

2-butene

Ethylene

1-butene

Propene

47. 39. Iodination reaction is

*Mark only one oval.*

Reversible

Irreversible

Reversible at high temperature only

Reversible at low temperature only

48. 40. Electrophilic substitution of toluene occurs at ..... position

*Mark only one oval.*

Ortho only

Para only

Both ortho and para

Meta

49. 41. -OH group in spectroscopy is referred as

*Mark only one oval.*

- Chromophore
- Red shift
- Auxochrome
- Blue shift

50. 42. The most non-metallic element among the following is:

*Mark only one oval.*

- Be
- Mg
- B
- Al

51. 43. The probability density is the

*Mark only one oval.*

- Square root of the wave function
- Absolute value of the wave function
- Absolute square of the wave function
- Inverse of the wave function

52. 44. Magnetic moment of a transition metal can be calculated from

*Mark only one oval.*

- Number of total electrons
- Number of valence electrons
- Number of unpaired electrons
- Number of paired electrons

53. 45. The angular momentum of an electron of mass  $m$  moving in a circular orbit of radius  $r$  and velocity  $v$  is

*Mark only one oval.*

- $mvr > nh/2\pi$
- $mv = h/2\pi$
- $mvr = nh/2\pi$
- $mvr < nh/2\pi$

54. 46. Which is the correct trend of the change of  $\Delta_o$  ?

*Mark only one oval.*

- $5d < 4d < 3d$
- $3d < 4d > 5d$
- $3d < 4d < 5d$
- $4d < 3d < 5d$

55. 47. Electrons should be filled in energy sub shells in order of increasing energy values, is the principle of

*Mark only one oval.*

- Pauling's
- Pauli's exclusion
- Aufbau
- Hund's

56. 48. Bohr theory was not able to explain

*Mark only one oval.*

- Monoelectron systems
- Li ions
- Multielectron systems
- Hydrogen atom

57. 49. The time independent form of Scrodinger equation  $\hat{H} \psi = E \psi$ ,  $\hat{H} =$

*Mark only one oval.*

- Laplacian operator
- Eigen function
- Hamiltonian operator
- Hamiltonian function

58. 50. Which of the following notations is not used to distinguish between pairs of enantiomers?

*Mark only one oval.*

R and S

+ and -

E and Z

D and L

59. 51. Conformations are different arrangements of atoms that can be converted into one another by rotation about

*Mark only one oval.*

Covalent bond

Double bond

Single bond

Triple bond

60. 52. What type of reaction takes place upon treatment of a ketone with HCN to form a cyanohydrin?

*Mark only one oval.*

Electrophilic substitution

Nucleophilic substitution

Nucleophilic addition

Electrophilic addition

61. 53. The shift of absorption maxima towards higher wavelength is called

*Mark only one oval.*

- Blue shift
- Auxochrome
- Red shift
- Chromophore

62. 54. Cis stilbene has lower wavelength than trans stilbene due to

*Mark only one oval.*

- Presence of steric repulsion between two H atoms in cis stilbene
- Presence of steric repulsion between two benzene rings in trans stilbene
- Presence of steric repulsion between two benzene rings in cis stilbene
- Presence of steric repulsion between two H atoms in trans stilbene

63. 55. Ozonolysis of Ethylene produces

*Mark only one oval.*

- Acetaldehyde
- Butanal
- Formaldehyde
- Acetone

64. 56. In bromination of benzene the electrophile is

*Mark only one oval.*

Cl

Br-

Br

Br<sub>2</sub>

65. 57. What is the effect of the optical angle of rotation ( $\alpha$ ) if length of polarimeter tube is halved and the concentration of the molecule is doubled ?

*Mark only one oval.*

$\alpha$  gets halved

$\alpha$  gets doubled

$\alpha$  remains same

$\alpha$  gets four times

66. 58. Electrophile are

*Mark only one oval.*

Electron rich species

Either electron deficient or electron rich depending on temperature

Electron deficient species

Vacant electrons

67. 59. The decreasing order of atomic numbers of the atoms He, C, F, B is

*Mark only one oval.*

F > C > He > B

C > F > B > He

F > C > B > He

He > B > C > F

68. 60. A process where volume remains constant is called

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Isobaric process

Isothermal process

Isochoric process

Adiabatic process

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