

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

Course Name - –Chemistry

Course Code - BSC(ECE)202

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Answer all the questions. Each question carry one mark.

9. 1. What is the axis of symmetry present in water molecule? *

Mark only one oval.

- C2
- C3
- C4
- C6

10. 2. Which one is true for a galvanic cell? *

Mark only one oval.

- The cell potential is always positive
- The cell potential is always negative
- ΔG for the cell reaction is positive
- ΔG for the cell reaction is zero

11. 3. Cis 2-butene and trans 2-Butene are *

Mark only one oval.

- Configurational isomers
- Diastereoisomers
- Both a and b
- Conformational isomers

12. 4. 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.

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

13. 5. Electrophile are *

Mark only one oval.

- Electron deficient species
- Electron rich species
- Either electron deficient or electron rich depending on temperature
- Vacant electrons

14. 6. The relation between ΔG of the cell reaction and emf E of the cell is given by *

Mark only one oval.

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

15. 7. 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 a and b

16. 8. The most non-metallic element among the following is: *

Mark only one oval.

Be

B

Mg

Al

17. 9. Ozonolysis of Ethylene produces *

Mark only one oval.

Formaldehyde

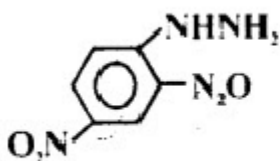
Acetaldehyde

Butanal

Acetone

18. 10. *

Which of the following compounds will give a coloured crystalline compound with



(2,4-Dinitro phenyl hydrazine)

Mark only one oval.

CH₃COCl

CH₃COOC₂H₅

CH₃COCH₃

CH₃CONH₂

19. 11. In a reversible cyclic process the entropy change is *

Mark only one oval.

- Positive
- Zero
- Negative
- Unpredictable

20. 12. Let there be four substituents namely..... COOH, D, H and CONH₂ attached to the chiral carbon, which one will have highest priority sequence *

Mark only one oval.

- D
- CONH₂
- H
- COOH

21. 13. Which of the following electronic configuration is likely to have highest electronegativity *

Mark only one oval.

- ns²np³
- ns²np⁴
- ns²np⁵
- ns²np⁶

22. 14. What type of reaction takes place upon treatment of a ketone with HCN to form a cyanohydrin? *

Mark only one oval.

- Nucleophilic addition
- Electrophilic substitution
- Nucleophilic substitution
- Electrophilic addition

23. 15. Hexane and 3-methyl pentane are example of *

Mark only one oval.

- Enantiomers
- Diastereoisomers
- Stereoisomers
- Chain isomers

24. 16. In an isothermal expansion of an ideal gas *

Mark only one oval.

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

25. 17. The stereoisomers which rotates the plain polarized light towards right is known as *

Mark only one oval.

R

D

S

d

26. 18. In nitration the electrophile is *

Mark only one oval.

NO₃⁻

HNO₃

NO₂⁺

N₂O₆

27. 19. The time independent form of Scrodinger equation $\hat{H} \psi = E \psi$, $\hat{H} =$ *

Mark only one oval.

Hamiltonian operator

Laplacian operator

Eigen function

Hamiltonian function

28. 20. Which one of the following is an intensive property? *

Mark only one oval.

- Enthalpy
- Entropy
- Density
- Internal energy

29. 21. Cannizzaro reaction is shown by the compound having how many alpha hydrogen? *

Mark only one oval.

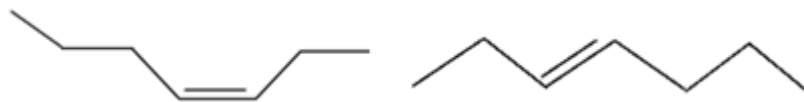
- 0
- 1
- 2
- 3

30. 22. The entropy of the universe is *

Mark only one oval.

- Decreasing
- Increasing
- Constant
- Dependent on conditions

31. 23. Which of the following terms best describes the following pair of molecules? *



Mark only one oval.

- Isomers
- Configurational isomers
- Constitutional isomers
- Geometrical isomers
32. 24. Magnetic measurements indicate that $[\text{Co}(\text{OH}_2)_6]^{2+}$ has 3 unpaired electrons. Therefore, the hybridization of the metal's orbitals in $[\text{Co}(\text{OH}_2)_6]^{2+}$ is: *

Mark only one oval.

- sp^3
- sp^2d
- dsp^2
- sp^3d^2
33. 25. The decreasing order of atomic radii of Li, B, C, F is *

Mark only one oval.

- $\text{Li} < \text{B} < \text{C} < \text{F}$
- $\text{Li} > \text{B} < \text{C} < \text{F}$
- $\text{Li} > \text{B} > \text{C} < \text{F}$
- $\text{Li} > \text{B} > \text{C} > \text{F}$

34. 26. What is formed by reaction of ammonia with formaldehyde? *

Mark only one oval.

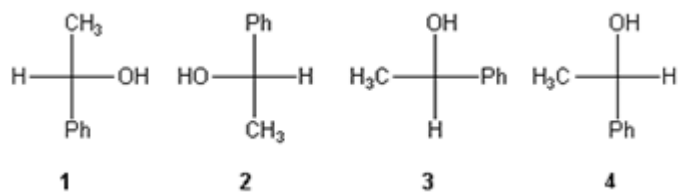
- Hexamethylenediamine
- Adipic acid
- Urotrophine
- Aldol

35. 27. In normal hydrogen electrode the activity of H⁺ ion is *

Mark only one oval.

- 0.2
- 2.0
- 0.1
- 1.0

36. 28. Which of the following Fischer projections is different from the other three? *



Mark only one oval.

- 1
- 2
- 3
- 4

37. 29. Which is the correct trend of the change of Δ_o ? *

Mark only one oval.

$3d < 4d < 5d$

$5d < 4d < 3d$

$3d < 4d > 5d$

$4d < 3d < 5d$

38. 30. Which statement is not true for wave function, ψ ? *

Mark only one oval.

Must be single-valued

Must be continuous

Must be infinite

Must be normalized

39. 31. 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 ? *

Mark only one oval.

Electron affinity

Ionization energy

Electronegativity

Bond energy

40. 32. Standard hydrogen electrode has been assigned to a potential of *

Mark only one oval.

1.5 Volt

1.0 Volt

0.5 Volt

0 Volt

41. 33. 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

42. 34. The probability density is the *

Mark only one oval.

Square root of the wave function

Absolute value of the wave function

Inverse of the wave function

Absolute square of the wave function

43. 35. In bromination of benzene the electrophile is *

Mark only one oval.

Cl

Br

Br-

Br₂

44. 36. In a reversible cyclic process the internal energy _____ Which of the following holds right ? *

Mark only one oval.

Remains unchanged

Increases

Decreases

Can not be predicted

45. 37. In case of amino acids which chiral carbon is taken to assign D,L nomenclature *

Mark only one oval.

1st

2nd

Last

All of these

46. 38. Electrophilic substitution of toluene occurs at position *

Mark only one oval.

- Ortho only
- Para only
- Meta
- Both ortho and para

47. 39. The shift of absorption maxima towards higher wavelength is called *

Mark only one oval.

- Blue shift
- Red shift
- Auxochrome
- Chromophore

48. 40. In which medium Favorskii rearrangement occurs? *

Mark only one oval.

- Acidic
- Basic
- Neutral
- Water

49. 41. 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 ΔU of the process is *

Mark only one oval.

- 1000 Cal
 2000 Cal
 4000 Cal
 8000 Cal

50. 42. 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
 Plain polarized light
 Ordinary light
 Non-polarized light

51. 43. Iodination reaction is *

Mark only one oval.

- Reversible
 Irreversible
 Reversible at high temperature only
 Reversible at low temperature only

52. 44. Which of the following notations is not used to distinguish between pairs of enantiomers? *

Mark only one oval.

- R and S
- E and Z
- + and -
- D and L

53. 45. The value of $\Delta H - \Delta E$ for a reaction involving gaseous substances is *

Mark only one oval.

- ΔnRT
- $\Delta n/ RT$
- $\Delta nR/ T$
- $RT/\Delta n$

54. 46. A tree in a garden is an example of which of the thermodynamic system ? *

Mark only one oval.

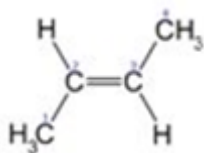
- Open system
- Closed system
- Isolated system
- Homogenous system

55. 47. For an ideal gas undergoing isothermal reversible expansion which of the following is true *

Mark only one oval.

- $\Delta G = \Delta A$
- $\Delta G = 1/\Delta A$
- $\Delta G = 2\Delta A$
- $\Delta G = 2/\Delta A$

56. 48. Assign configuration to the given compound *



Mark only one oval.

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

57. 49. Electrons should be filled in energy sub shells in order of increasing energy values, is the principle of *

Mark only one oval.

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

58. 50. During the melting of ice at 0 °C into water at 0 °C, entropy *

Mark only one oval.

- Increases
- Decreases
- Remain unchanged
- May increase or decrease

59. 51. E1 reaction is best shown by..... alkyl halide *

Mark only one oval.

- 1°
- 2°
- 3°
- Both (a) and (b)

60. 52. 1-butene on ozonolysis produces *

Mark only one oval.

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

61. 53. The decreasing order of atomic numbers of the atoms He, C, F, B is *

Mark only one oval.

F > C > B > He

F > C > He > B

C > F > B > He

He > B > C > F

62. 54. Which form is most stable form of n butane *

Mark only one oval.

Gauche

Eclipsed

Partially eclipsed

Staggered

63. 55. A galvanic cell is used for the conversion of *

Mark only one oval.

Chemical energy to heat energy

Chemical energy to electrical energy

Electrical energy to chemical energy

Heat energy to chemical energy

64. 56. Non superimposable mirror images are known as *

Mark only one oval.

- Enantiomers
- Diastereomers
- Optical isomers
- Isomers

65. 57. Magnetic moment of a transition metal can be calculated from *

Mark only one oval.

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

66. 58. What is the effect of the optical angle of rotation (α) if length of polarimeter tube is halved and the concentration of the molecule is doubled *

Mark only one oval.

- α remains same
- α gets halved
- α gets four times
- α eight times

67. 59. For a spontaneous process, *

Mark only one oval.

$\Delta G, P=0$

$\Delta G, P<0$

$\Delta G, P>0$

$\Delta A, T=0$

68. 60. Which is the least stable form of n-butane *

Mark only one oval.

Eclipsed

Staggered

Partially eclipsed

Gauche

69. 61. -OH group in spectroscopy is referred as *

Mark only one oval.

Auxochrome

Chromophore

Red shift

Blue shift

70. 62. Cis stilbene has lower wavelength than trans stilbene due to *

Mark only one oval.

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

71. 63. For the reaction $2\text{SO}_2(\text{g}) + \text{O}_2(\text{g}) = 2\text{SO}_3(\text{g})$ *

Mark only one oval.

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

72. 64. 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.

- $+50^\circ$
- $+25^\circ$
- $+15^\circ$
- $+4.0^\circ$

73. 65. 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

74. 66. The value of $(\Delta H - \Delta E)/RT$ for the reaction $2HI(g) = H_2(g) + I_2(g)$ is *

Mark only one oval.

- 1
- 0
- 1
- 2

75. 67. 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

76. 68. Bohr theory was not able to explain *

Mark only one oval.

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

77. 69. A process where volume remains constant is called *

Mark only one oval.

- Isochoric process
- Isobaric process
- Isothermal process
- Adiabatic process

78. 70. SN1 reaction proceeds through the formation of *

Mark only one oval.

- Carbon radicals
- Carbocation
- Carbanion
- Carbene

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