BCECE

Question Paper - 2022

Memory Based



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Dear students

This is a memory based question paper.

We have compiled this question paper on the basis of questions shared by students, after the exam. Also, answers are unofficial.

We hope this helps you in clearing your exam with an excellent score.

It is an honor for us to be a part of your journey towards success.

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Physics

Q1. When two mutually perpendicular alternating magnetic field superimposed on each other, the resulting field is :

A) Linear
B) Rotating
C) Stationary
D) Alternating

Correct answer : B

Q2. What is the r.m.s. value of an alternating current which when passed through a resistor produces heat, which is four times that produced by a current of 2A in the same resistor?

A) 2A
B) A
C) 4A
D) 8A

Correct answer : C

Q3. An rm.s. voltage of 220 V is applied across a series circuit having a resistance of 100 ohm and impedance 22 ohm. the power consumed is :

A) 100 W
B) 1000 W
C) 10 W
D) 10000 W

Correct answer : B

Q4. A beaker is filled with water (μ = 4/3) upto a height of 33.25cm. A concave mirror placed 15 cm above the water level and the image of an object placed at the bottom is formed 25 cm below the water level. The focal length of mirror is nearly :

A) 6 cm
B) 18 cm

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C) 12 cm
D) 24 cm

Correct answer : B

Q5. Young's double slit experiment is first performed in air and then in a medium other than air. If it is found that 9th bright fringe in the medium lies where 5thdark fringe lies in air, then the refractive index of the medium is :

A) 1.43
B) 1.63
C) 1.5
D) 1.7

Correct answer : D

Q6. A plane electromagnetic wave of wave interface10 W/m2 Strikes a small mirror of area 20 cm2, held perpendicular to the approaching wave. The radiation force on the mirror will be :

A) 6.6×10^{-11} N
B) 1.33×10^{-10} N
C) 1.33×10^{-11} N
D) 6.6×110^{-10} N

Correct answer : A

Q7. Instantaneous displacement current of 1.0 A in the space between the parallel plates of 1μ F capacitor can be established by changing potential difference of :

A) $10^{-6}\ V/s$
B) $10^{-8}\ V/s$
C) $10^{6}\ V/s$
D) $10^{8}\ V/s$

Correct answer : C

Q8. In displacement method if I1 and I1 be the sizes of the two images, then the size of the object is :

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A) $\sqrt{I_1 I_2}$

B) $I_1 - I_2$

C) $\sqrt{I_1/I_2}$

D) $I_1 + I_2/2$

Correct answer : A

Q9. An air bubble is inside water (μ = 4/3). At what distance from the air bubble should a point object be placed so as to form a real image at the same distance from the bubble?
(r is the radius of curvature of bubble)

A) 2R

B) 4R

C) 3R

D) THe air bubble cannot form a real image

Correct answer : D

Q10. A ray of light is incident normally on one face of an equilateral prism (μ = 3/2).The angle of deviation is :

A) 30^0

B) 60^0

C) 45^0

D) 75^0

Correct answer : B

Q11. A 100—W bulb and 4 25-W bulbs are made for the same voltage. They have filaments of the same length and material. The ratio of the diameter of the 100-W bulb to that of the 25-W bulb is :

A) 4:1

B) $\sqrt{2}:1$

C) 2:1

D) $1:\sqrt{2}$

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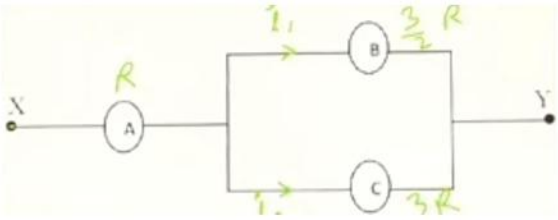
Correct answer : C

Q12. If the length of a filament of a heater is reduced by 10%, the power of the heater will:

A) Increase by about 9%
B) Decrease by about 10%
C) Increase by about 11%
D) Decrease by about 19%

Correct answer : C

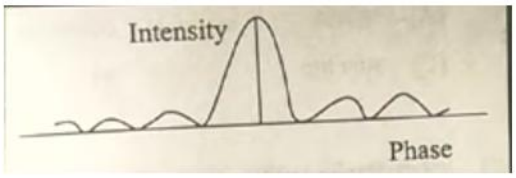
Q13. A. B and C are voltmeters of resistance R, 3/2R and 3R respectively. When some potential difference is applied between X and Y, the voltmeter readings are V_A, V_B and V_C respectively. Then :



A) $V_A = V_B = V_C$
B) $V_A \neq V_B = V_C$
C) $V_A = V_B \neq V_C$
D) $V_A \neq V_B \neq V_C$

Correct answer : A

Q14. The pattern is observed in which experiment ?



A) Fabry - Perot interferometer
B) Double slit diffraction
C) Single slit diffraction
D) Fresnel diffraction

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Correct answer : C

Q15. The resolving power of a telescope is directly proportional to :

A) The frequency of light used
B) Square of the frequency of light used
C) The wavelength of light used
D) Square the wavelength of light used

Correct answer : A

Q16. The velocity of light in a medium is $\sqrt{3}$ x $10^8 m/s$.The polarizing angle of incidence is :

A) 30^0
B) 60^0
C) 45^0
D) $tan^{-1}(3)$

Correct answer : B

Q17. A body cools from 50°C to 40°C in 5 min. The surrounding temperature is 20°C. In what further time (in minutes) will it cool to 30°C.

A) 5
B) 15/4
C) 25/3
D) 10

Correct answer : C

Chemistry

Q1. Which one is an amphoteric oxide :

A) Na2O
B) B2O3
C) SO2
D) ZnO

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Correct answer : D

Q2. This compound has both ionic and covalent bonds :

A) CH4
B) KCN
C) H2
D) Kcl

Correct answer : B

Q3. The total number of electrons involved in forming N2 molecule are :

A) 2
B) 10
C) 4
D) 6

Correct answer : D

Q4. Which is paramagnetic?

A) O_2^-
B) CO
C) CN^-
D) NO^+

Correct answer : A

Q5. Equal weights of C2H6 and H2 are mixed in a container at 25^0C. The fraction of the total pressure exerted by H2 is :

A) 1/2
B) 1/16
C) 1/3
D) 15/16

Correct answer : D

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Q6. At 298^0K the bond energies of C-H, C-C, C=C and H-H bonds are 414, 347, 615 and 435 KJ/mol respectively. The value of enthalpy change for the reaction $H_2C = CH_2(g) + H_2(g) \rightarrow H_3C - CH_3(g)$ at 298 K will be :

A) -125 KJ
B) +125 KJ
C) -250 KJ
D) +250 KJ

Correct answer : A

Q7. The number of σ and π bonds in 1-butene-3-yne are :

A) $5\sigma, 5\pi$
B) $8\sigma, 2\pi$
C) $7\sigma, 3\pi$
D) $5\sigma, 4\pi$

Correct answer : C

Q8. If the solubility of $Mg(OH)_2$ in its saturated solution in water is x mole/l, its solubility product is :

A) $4x^3$
B) $27x^4$
C) $108x^5$
D) 9x

Correct answer : A

Q9. The equilibrium constant Kc for the reaction $SO_3(g) \rightleftharpoons SO_2(g) + 1/2O_2(g)$ is 4.9 x10^{-3}. The value of Kc for the reaction $2SO_2(g) + O_2(g) \rightleftharpoons 2SO_3(g)$ is :

A) $9.8 * 10^{-2}$
B) 416
C) 4.9 x 20^{-2}
D) 2.40 x 10^{-3}

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Correct answer : B

Q10. How many litres of H2O must be added to 1l is of an aqueous solution HCL at pH 1 to change the pH to 2?

A) 0.1 l
B) 2.0 l
C) 0.9 l
D) 9.0 l

Correct answer : D

Q11. The Ksp for $Cr(OH)_3$ is 1.6 x 10^{-30}. The maximum solubility of this compound is :

A) $(1.6 * 10^{-34})^{1/4}$
B) 1.6 x $1^{-30/27}$
C) $(\frac{1.6 * 10^{-30}}{27})^{1/4}$
D) $(1.6 \times 10^{-3})^{1/2}$

Correct answer : C

Q12. Which one does not contain CaCO3?

A) Gypsum
B) Dolomite
C) Sea shells
D) Marble

Correct answer : A

Q13. Which one produced permanent hardness in water?

A) MgCO3
B) Na2SO4
C) CaSO4
D) CaCO3

Correct answer : C

Q14. It gives a basic and an acidic oxide on thermal decomposition :

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A) NaNO3
B) CaCO3
C) KClO3
D) NH4NO3

Correct answer : B

Q15. $LiNO_3 \xrightarrow{\text{Heat}}$ **will give** :

A) $Li_2O + NO_2 + O_2$
B) $Li_2O + NO + O_2$
C) $Li_3N + O_2$
D) $LiNO_2 + O_2$

Correct answer : A

Q16. How many molecules of water of crystallization are there in magnesium chloride?

A) 2
B) 6
C) 4
D) 8

Correct answer : B

Q17. $KO_2 + H_2O$ **produces :**

A) $H_2 + O_2$
B) $H_2 + O_3$
C) $H_2O_2 + O_2$
D) H_2O_2

Correct answer : C

Q18. This has the largest bond length for C-C :

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A) C_2H_6
B) CH≡ CH
C) C_2H_4
D) C_6H_6

Correct answer : A

Q19. How many chloride ion are there around sodium ion in sodium chloride crystal ?

A) 3
B) 8
C) 4
D) 6

Correct answer : D

Q20. This alkene show geometrical isomerism :

A) 2-methylpropene
B) Propene
C) 2-butene
D) 2-methyl-2-butene

Correct answer : C

Q21. Reaction with the following can distinguish between 1-butyne and 2-butyne :

A) Br_2
B) dil.$H_2SO_4 + Hg^{++}$
C) H_2
D) Ammonical Cu_2Cl_2

Correct answer : D

Q22. The reaction of $AgC \equiv CAg$ with HNO_3 gives :

A) $CH \equiv CH$
B) $CH_4 + CO_2$

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C) $CH_2 = CH_2$

D) $CO_2 + H_2O$

Correct answer : A

Q23. What is Lindlar's catalyst?

A) Zn/Hg
B) Pd/CaCO3
C) Cu/HCl
D) Pt

Correct answer : B

Q24. The product of ethyl benzene oxidized by alkaline KMnO4 is :

A) Benzyl alcohol
B) Acetophenone
C) Benzophenone
D) Benzoic acid

Correct answer : D

Q25. This gives only one mono substituted alkyl halide :

A) T-butyl chloride
B) Isohexane
C) Neopentane
D) Propane

Correct answer : A

Q26. A 5.25% solution of a substance is isotonic with a 1.5% solution of urea (M=60). Assuming densities of both to be 1g/cc, molecular weight of the substances is :

A) 210
B) 115
C) 90
D) 105

Correct answer : A

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Q27. The molarity of a solution obtained by mixing 750 ml of 0.5 M HCL with 250 ml of 2M HCl is :

A) 0.875
B) 1.75
C) 1.0
D) 0.975

Correct answer : A

Q28. Under identical conditions, which gas will diffuse fastest ?

A) N2
B) CO2
C) SO2
D) H2O

Correct answer : D

Q29. The molarity of pure water is :

A) 18
B) 36
C) 55.4
D) 39.9

Correct answer : C

Q30. Which reagent is used for testing NH3?

A) Baeyer
B) Fenton
C) Nessler
D) Molisch

Correct answer : C

Q31. Which soluble is NaOH?

A) $Fe(OH)_2$

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B) $Cu(OH)_2$

C) $Mg(OH)_2$

D) $Al(OH)_3$

Correct answer : D

Q32. Its Van't Hoff factor is same value of $K_2Fe(CN)_6$:

A) Na_2SO_4

B) $Al(NO)_3$

C) $Al_2(SO_4)_3$

D) NaCl

Correct answer : C

Q33. For $PbBr_2$, the relationship between solubility S and solubility product K :

A) $S = \sqrt{\frac{K_s}{4}}$

B) $S = \sqrt[3]{\frac{K_s}{4}}$

C) $S = \sqrt{\frac{K_s}{8}}$

D) $S = \sqrt{\frac{K_s}{8}}$

Correct answer : B

Q34. Ksp of $BaSO_4$ is 1.5 x 10^{-9}. $BaSO_4$ will precipitate from its 0.01 M solution when the concentration of H_2SO_4 will be :

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A) 10^{-9} M

B) 10^{-7}M

C) 10^{-8}M

D) 10^{-6}M

Correct answer : B

Q35. In which pair the reaction will take place ?

A) NaHCO3, NaOH

B) Na2CO3, NaOH

C) Na2CO3, NaHCO3

D) NaHCO3, NaCl

Correct answer : D

Q36. Which is Bauxite :

A) Al2O3

B) H2O

C) Al2O3.H2O

D) Al2O3.4H2O

Correct answer : C

Q37. In which case the disperse medium is liquid and dispersion medium is gas :

A) Fog

B) Milk

C) Soap foam

D) Smoke

Correct answer : A

Q38. What is the charge on particles in a sol at isoelectric point ?

A) Positive

B) Negative

C) 0

D) Can be anything

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Correct answer : C

Q39. What is Caro's acid ?

A) $H_2S_2O_7$
B) $H_2S_2O_8$
C) H_2SO_3
D) $HClO_3$

Correct answer : C

Q40. SO_3^{2-} **changes dichromate paper :**

A) Green
B) Yellow
C) Violet
D) White

Correct answer : A

Q41. On heating, this one does not produce NO_2**:**

A) NH_4NO_3
B) $Cu(NO_3)_2$
C) $Pb(NO_3)_2$
D) $AgNO_3$

Correct answer : A

Q42. Which one does not form a pentahalide?

A) P
B) Sb
C) As
D) Bi

Correct answer : D

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Q43. Which one does not form?

A) HFO_4
B) $HBrO_4$
C) $HClO_4$
D) HIO_4

Correct answer : A

Q44. Which one is a cyclic oxo acid ?

A) H_3PO_4
B) $H_3P_3O_9$
C) $H_4P_2O_7$
D) H_3PO_3

Correct answer : B

Q45. Which one is not a pseudohalide?

A) CN^-
B) $RCOO^-$
C) SCN^-
D) OCN^-

Correct answer : A

Q46. Which has following highest density :

A) Au
B) Ag
C) Os
D) Hg

Correct answer : A

Q47. The correct order of electronegativity :

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A) C > N > Si > P
B) Si > P > N > C
C) N > C > P > Si
D) None

Correct answer : C

Q48. An aqueous solution of a compound containing 0.6 g in 21.7 g of H2O freezes at 272.187 K. The value of Kf for H2O is 1.86 degree/molarity, the mol.wt. Of the compound is :

A) 26.63
B) 66.23
C) 63.26
D) 126.52

Correct answer : C

Q49. Which is amphoteric oxide :

A) Mg
B) Cao
C) Feo
D) ZnO

Correct answer : D

Q50. Tyndall effect related is :

A) Reflection
B) Scattering
C) Dispersion
D) Refraction

Correct answer : B

Q51. The percentage of styrene and butadiene in SBR :

A) 1:3
B) 3:1
C) 2:1
D) 1:2

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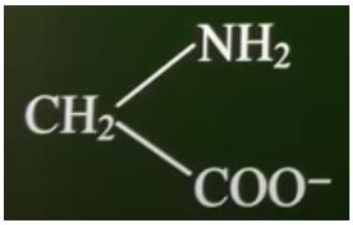
Correct answer : B

Q52. The 6 donor atoms of EDTA are :

A) IN, 50
B) 1N, 30
C) 2N, 40
D) 4N, 20

Correct answer : C

Q53. Which one is an ambidentate ligand ?

A) NH3
B) NO2
C) CO
D) 

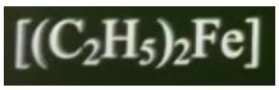
Correct answer : D

Q54. Ferrocene is :

A) 

B) 

C) 

D) 

Correct answer : D

Q55. Which ligand forms a chelate ?

A) Acetate

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B) Cyanide
C) Oxalate
D) Ammonia

Correct answer : C

Q56. Which amino acid contains S ?

A) Methionine
B) Valine
C) Leucine
D) Glutamine

Correct answer : A

Q57. Keratin is not present in :

A) Hair
B) Blood cells
C) Nail
D) Skin

Correct answer : B

Q58. How many C-atoms are in oleic acid?

A) 17
B) 19
C) 18
D) 20

Correct answer : C

Q59. Which one is an actinide?

A) Ta
B) Y
C) Lu
D) U

Correct answer : D

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Q60. Which has the largest atomic radii?

A) Co
B) Cu
C) Ni
D) Zn

Correct answer : D

Q61. Hydrogenation of oils into fats requires following catalyst :

A) Fe
B) Mo
C) Ni
D) V2O5

Correct answer : C

Q62. Which ion is colorless in aqueous solution ?

A) Mn^{+2}
B) Zn^{+2}
C) Cu^{+2}
D) Fe^{3+}

Correct answer : B

Q63. Which one is an acidic oxide?

A) Cr2O3
B) CrO3
C) CrO3
D) V2O3

Correct answer : B

Q64. Cm symbol stands for :

A) Californium
B) None

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C) Cerium
D) Curium

Correct answer : D

Q65. What is Bordeaux mixture?

A) CaSO4 + Cu(OH)2
B) CuSO4 + Ca(OH)2
C) CuSO4 + CaO
D) CuO + CaO

Correct answer : B

Q66. Which one of the following base is not present in DNA ?

A) Thymine
B) Guanine
C) Adenine
D) Uralic

Correct answer : D

Q67. Which of the following metal has maximum number of unpaired electron in :

A) Ni
B) Co
C) Fe
D) Cr

Correct answer : C

Q68. $1s^2, 2s^2, 2p^6, 3x^2$ **represents is :**

A) Mg
B) Ni
C) Al
D) N

Correct answer : A

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Q69. Barbituric acid and its derivatives are well known as :

A) Tranquilizer
B) Antiseptic
C) Analgesic
D) Antipyretics

Correct answer : A

Q70. When of the following correct for Acidic strength :

A) HClO > HClO2 > HClO3 > HclO4
B) HClO > HClO2 > HClO3 < HClO4
C) HClO < HClO2 < HClO3 < HClO4
D) HClO < HClO2 > HClO3 < HClO4

Correct answer : C

Q71. Chlorophyll contains which metal ?

A) Mn
B) Mg
C) Ca
D) Al

Correct answer : B

Q72. Conjugate acid of NH_2^- is :

A) NH_4^+
B) NH3
C) NH2OH
D) NH^-

Correct answer : B

Q73. How many carbon atom in sodium Lauryl Sulphate :

A) 10
B) 12

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C) 8
D) 16

Correct answer : B

Q74. Which has the most stable +2 oxidation no?

A) Sn
B) Fe
C) Pb
D) Ag

Correct answer : C

Q75. How many Al_2SO_4 in Potash Alum :

A) 24
B) 6
C) 3
D) 4

Correct answer : A

Q76. CsI_3 on dissociate give :

A) Cs^{3+}, I_3^-
B) Cs^+, I_3^-
C) $Cs^+, 3I^-$
D) Cs^+, I^-

Correct answer : B

Q77. All alkali metals are :

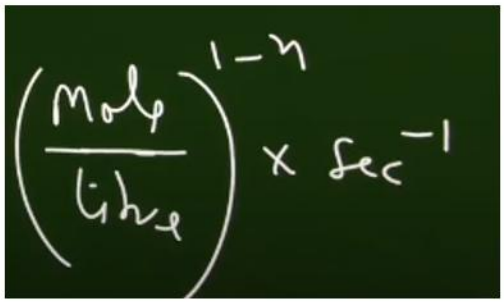
A) Paramagnetism
B) Diamagnetism
C) Antiferromagnetism
D) Ferromagnetic

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Correct answer : B

Q78. Unit of Zero order reaction :

A) 

B) Mole/l

C) Both A and B

D) None

Correct answer : A

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