

BHARATHI STUDY CENTRE
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PG TRB – 2013 KEY

SUBJECT : CHEMISTRY

SERIES : A

1. The nitration products of quinoline are

Ans: A. 8-nitroquinoline and 5-nitroquinoline

2. The Ozonolysis product of zingiberine are

Ans: B. acetone, laevulic acid and succinic acid

3. Cholesterol contains a double bond and an OH group at which position

Ans: B. C – 5 and C - 3

4. The radiation density of Black Body radiation calculated by planck is

Ans: C.

5. A ball is moving with a velocity of 3000 cm s^{-1} .----- uncertainty in velocity?

Ans: All the answers are wrong

6. The learning of a particular task facilitates subsequent learning of another task

Ans: C. positive transfer of learning

7. Theory of hierarchial of human needs is proposed by

Ans: D. Abraham Maslow

8. which is not defence mechanisms

Ans: D. conflict

9. Which of the following is not a biological factor of personality

Ans: B. intelligence

10. The formula used to arrive IQ

Ans: A. $MA/C.A \times 100$

11. In one of the Maxwell's relations ----

Ans: C.

12. Which of the following are the substitutes for pressure and concentration to explain----

Ans: D. fugacity and activity

13. Ionic strength of 0.2m BaCl_2

Ans: C . 0.6

14. The root mean square velocity of H_2 -----

Ans: A. 1840 ms^{-1}

15. Which of the following equation is obtained by the replacement-----

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- Ans: B. Sackur Tetrode equation
16. Conflict between two negative goals is
Ans: A. Avoidance - avoidance
17. The Goal of Educational Innovation is
Ans: A. Positive change in learning
18. Which Ashram presents "Ideal of Human Unity"
Ans: C. Sri Aurobindo ashram
19. Who first advocated that "Women are equal to men" in Education
Ans: A. Vivekanandar
20. The preamble of the Indian constitution describes one of the principles as---
Ans: A. Equality
21. Birch reduction of pyridine gives
Ans: B. 1, 4- dihydropyridine
22. Which is the product formed in the following reaction
Ans: D.
23. E_a of a reaction is Zero k is equal to -----
Ans: C (must be A not A^0)
24. For the set of reactions -----
Ans: A. $d[c]/dt$
25. Bronsted equation is
Ans: A. $K_a = G_a K_a^\alpha$
26. What minimum tube voltage would be required to excite the K and L series of -----
Ans: D. 112. and 17.2
27. Which of the following solvents have maximum eluting power ?
Ans: A. water
28. The potential corresponding to half the current in the polarogram is-----
Ans: B. half wave potential
29. In the nuclear reaction -----
Ans: C ${}_{-1}e^0$
30. The emission of gamma rays results
Ans: A. decrease in energy of the nucleus.
31. Which of the following is aromatic

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- Ans: C. cyclopentadienyl anion
32. Which of the following undergo electrophilic substitution more readily
Ans: **doubt**
33. Mono nitration of aniline in strong acids give:
Ans: A. m-nitroaniline
34. The mechanism of the reaction, Chlorobenzene + NaNH_2 -----
Ans: C. elimination addition reaction
35. Which of the following product is formed in the reaction
Ans: A or B (both are same)
36. The phase diagram for a one component system is shown----
Ans: D. 0, 2, and 1
37. Mixture of water and two salts like amm sulfate and amm chloride is -----
Ans: A. Three component system
38. Among the following detectors which is not the common detector for HPLC
Ans: C. Photoionisation
39. DTA and TGA techniques are useful for
Ans: A. decomposition and oxidation
40. The term fractional crystallinity is related with
Ans: C ΔH_f sample and ΔH_f crystal
41. which one of the following nuclear reaction produces stellar energy-----
Ans: B. $4\text{}^1_1\text{H}$ ---
42. Carbon -14 decays with emission of -----
Ans: B β particle
43. Which of the following radioisotope used in agriculture
Ans: D ^{32}P
44. The organometallic compound is used in OXO process
Ans: A $[\text{HCo}(\text{CO})_4]$
45. Wilkinson 's catalyst used in -----
Ans: C Hydrogenation of alkenes
46. Which of the following pair used to prepare Ziegler Natta catalyst
Ans: A. $\text{Et}_3\text{Al} + \text{TiCl}_4$
47. Which noe of the following statements on ferrocene is incorrect-----

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- Ans: C obtained when C_5H_5 and reduced iron heated at 300 C
48. If half life period is 100 years average life is nearly
Ans: D 144 years
49. For H_3PO_3 ^{21}P NMR spectrum shows
Ans: C. Doublet
50. Which among the following microstates are possible for Cr^{3+} ion
Ans: B. 120
51. Aryl halides are less reactive towards S_N reactions as compared to alkyl halides due to
Ans: B. resonance stabilisation
52. In the given reaction, 'X' is
Ans: A.
53. Dehydrobromination is in the order for the following compounds
Ans: A. (III)>(II)>(I)
54. Cope reaction is used in the preparation of
Ans: A. alkene
55. Which is the major product in the following reaction
Ans: C
56. The electrons which contribute to isomer shift in Mossbauer spectra---
Ans: A. s- electron
57. The molecule which is IR inactive but Raman active
Ans: B. N_2
58. The increase in rotational energy shows absorption spectrum in
Ans: D. microwave region
59. The frequency of UV radiation is greater than
Ans: C and D (all are ie., IR, microwave and visible region have lesser frequency)
60. Which of the following diatomic molecules will not give a rotational spectrum
Ans: B. N_2
61. Which among the following alkynes will give aldehyde on hydroboration-----
Ans: D. all the three
62. Which of the following reagent when treated with alkene gives a diol
Ans: A. OsO_4
63. When an alkene reacts with peracid the product is

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Ans: C. epoxide

64. The most probable product in the following reaction is

Ans: C.

65. Fisher indole synthesis involves the reaction between

Ans: C. phenyl hydrazine and pyruvic acid

66. When excess of sodium is burnt in chlorine we get-----

Ans: B. yellow NaCl

67. Which one of the following is not p-type non stoichiometric semiconductors.

Ans: D. CdS

68. Ruby laser is obtained when some aluminium ions of Al_2O_3

Ans: A. Cr^{3+}

69. Ferromagnetism of metals is lost at-----

Ans: B. Curie temperature

70. Which one of the following effects is shown by superconductors

Ans: A. Meissner

71. What is the wavelength of electron wave determined by Davisson and Germer exp.---

Ans: C. 1.65 \AA

72. How many degenerate energy states are present in $E = 9h^2/8mL^2$

Ans: D. 3

73. Which one is quantum mechanical operator for the x component of kinetic energy—

Ans: A.

74. What is the angular momentum value if $l = 1$ and $m = -1$

Ans: A

75. Which one is Hamiltonian operator for a helium atom by perturbation method

Ans: C.

76. Role of the Teacher in child centred education

Ans: D. all of these

77. Joyful learning is based on the principles of Pedagogy which are entirely based on

Ans: D. both (A) and (B)

78. Who is the founder of the community school viewing the publication of village college----

Ans: B. Henry Morris

79. The Sainik Schools are a system of schools in India conceived in 1961

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Ans: D. V.K Krishna Menon

80. Which Institute is the producer of Educational Television programme for young-----

Ans: A. Central Institute of Educational Technology, New Delhi

81. Which one of the following is a complex cation

Ans: B. Hexammine chromium (III) nitrate

82. The Structure of -----

Ans: C. Octahedral

83. The correct sequence of groups in assigning R S configuration

Ans: C. NH_2 , COOH , CH_3 , H

84. The configuration of the chiral centres of the given compound is-----

Ans: B. 2S, 3S

85. Which one of the following is an Z isomer

Ans: A

86. The committee that suggested a system of multipurpose education at the secondary stage

Ans: B. Tarachand committee

87. By the constitutional amendment of ----- Education was placed in concurrent list

Ans: C. 1976

88. No. child below the age of 14 years shall be employed to work is mentioned---

Ans: A 23. (actually the article 24 is correct)

89. NCERT in its publication documents on social moral and spiritual values-----

Ans: B. 84

90. Manpower planning is highly influenced by the pattern of -----

Ans: D. Migration

91. -----developed his theory of identical elements to explain transfer of learning---

Ans: D. Thorndike

92. ----- involves higher order cognition in the interpretation of sensory information---

Ans: B. Perception

93. I problem solving ability improves with age

II This improves in terms of both speed and accuracy

Ans: D. I and II are correct

94. Trial and error theory was given by-----

Ans: B. Edward. L Thorndike

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95. Ebbinghaus experiment is related to

Ans: B curve of forgetting

96. which of the following is not asymmetric compound

Ans: A $\text{H}_3\text{C CH}=\text{C}(\text{CH}_3)_2$

97. Conformation of decalins are-----

Ans: C. cis and Trans decalins

98. Which of the following conformation of cyclohexane is the most stable

Ans: A. chair form

99. In the given reaction product A is

Ans: A

100. Which of the following compounds will be least reactive to SN^1 rxn.

Ans: **doubt**

101. Choose the symmetry operations for NH_3

Ans: B $E, 2C_3, 3\sigma_v$

102. What is the selection rule for rotational Raman spectroscopy?

Ans: C. ± 2

103. Choose the delocalization energy for trans 1 3 butadiene using Huckel MO theory

Ans: A. 0.472β

104. Third law of thermodynamics implies that

Ans: B.

105. The chemical potential of i^{th} component of a mixture is

Ans: A

106. The General order of solubility of halides in liquid ammonia

Ans: A. $\text{I}^- > \text{Br}^- > \text{F}^-$

107. Ammonium chloride in liquid ammonia will act as

Ans: A. Acid

108. Bond order in CO is :

Ans: D. 3

109. According to band theory of bonding conduction occurs in very good conductors –

Ans: B. Valence band and conduction band overlap

110. Which one of the following defect increases the dielectric constant of the material—

Ans: A. Frenkel

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111. The general assembly of the UNO proclaimed 1974 as the ----
Ans: C. World population year
112. Learner controlled instruction (LCI) was developed by. -----
Ans: A Robert mager
113. In the 19th century the research by ----proclaims that in Bengal state of the 5 lakh---
Ans: B. Rockfeller.
114. Book illusion is a figural illustration representing which one of the following
Ans: D. Fluctuation of attention
115. Principle of Hedonism in emotional development is a concept that concentrates
Ans: A Pleasant
116. Increase in temperature and pH changes of protein causes
Ans: D Denaturation
117. The mean ionic activity coefficient of a 0.1 m uni- univalent electrolyte in water
Ans: A. 0.755
118. The standard reduction potential for the reactions
Ans: B. -0.136V and 0.15V
119. The polarization for non polar molecule like H₂, O₂, CH₄
Ans: B. independent of temp.
120. Langmuir Isotherm explains
Ans: C. Adsorbtion
121. The third Indian National congress (1887) conference was held in
Ans: C. Chennai
122. Who is popularly known as Gangaikonda cholana
Ans: D. Rajendra I
123. Who won the man of the series title in 2013 ICC champion trophy cricket
Ans: C. Shikhar Dhawan
124. The article which provides special status to the state Jammu and Kashmir
Ans: C. Article 370.
125. NCTE stands for
Ans: C. National council for Teacher education
126. The MB spectra of Na₂[Fe(CN)₆NO] complex is doublet, because of
Ans: D. Extensive π bonding

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Note: formula should be $\text{Na}_2[\text{Fe}(\text{CN})_5\text{NO}]$.

127. The complex ion with maximum CFSE

Ans: A $[\text{Co}(\text{NH}_3)_6]^{3+}$

128. CrO_4^{2-} ion is intensely yellow coloured since the transition is

Ans: C. Charge transfer

129. A Jahn Teller distortion of $[\text{Ti}(\text{H}_2\text{O})_6]^{3+}$ leads to

Ans: D remove an electronic degeneracy

130. What is the g value for methyl radical shows ESR at 3000 Gauss in a spectrometer-----

Ans: B. 2.0047

131. Who wrote The God of Small Things

Ans: A Arundhati Roy

132. When sodium chloride is added to water the solution boils

Ans: B Above 100 C

133. NH 7 connects

Ans: D. Varanasi to Kanyakumari.

134. The youngest nominee for the Nobel prize who popularly known for women's education

Ans: B. Malala

135. The East India Company of England got permission to trade in India during the period

Ans: B. Jahangir

136. The electron affinity of the following elements can be arranged:

Ans: A. $\text{Cl} > \text{O} > \text{C} > \text{N}$

137. Which of the following species has lowest ionization potential

Ans: D. O_2^-

138. The polarity in H-X bond is in the following order

Ans: B. $\text{HF} > \text{HCl} > \text{HBr} > \text{HI}$

139. Choose the correct order of bond energies in the following series

Ans: A. $\text{C}=\text{O} > \text{O}=\text{O} > \text{C}-\text{O}$

140. Which of the following favours high lattice energy in ionic compounds

Ans: B. Small ion high charge

141. Vinyl type compounds usually undergo

Ans: A. Chain polymerization

142. Which of the following functional group present in epoxy resin

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Ans: C. Polyether

143. At what temperature, polyvinyl chloride is prepared from acetylene and hydrochloric –

Ans: D. 150 C

144. The reaction of ammonium chloride with BCl_3 at 140 C followed NaBH_4 give X

Ans: 145. $\text{B}_3\text{N}_3\text{H}_6$

145. The molecular formula of monomeric phosphazene is

Ans: D. PNCl_2

146. Furl KOH ?

Ans: A

147. Curtius rearrangement is

Ans: A. RCO_2N_3 ----- isocyanate ----- RNH_2

148. α - naphthyl allyl ether 200 C ?

Ans: B. 2-allyl-1-naphthol

149. Transe – 3,4-dimethylcyclobutene Δ

Ans: D Mixture of the cis, cis and Trans, trans -2,4- hexadiene

150. Fries rearrangement is the conversion of

Ans: D. Aryl esters to o and p – hydroxyl ketones in the presence of Lewis acids

Note: TRB Key will be the final.

Note: This time both easy and tough questions are there. But compared to last year this year question is tough(But not good standard). Like last year most of the questions are from our material only. We proved once again. I hope u have satisfied with our study material. Students who attended all the classes and wrote all the tests we conducted, surely will score high.

Anything **above 97 mark will be safe.**

Expected cut off mark for BC is 94 ± 3 .

For clarification contact: **98942 74672 / 8682084318 (for PG & TET coaching)**

All the Best !!! for both our regular and postal Students