TET CUM TRT – 2018

PGT - CHEMISTRY

1. Fungi are the plants that lack

    1. Oxygen
    2. Carbondioxide
    3. **Chlorophyl**
    4. Nitrogen

2. The polymer used in making non-stick kitchen ware

    1. Nylon
    2. **Teflon**
    3. Polystyrene
    4. Bakelite

3. Telescope was invented by

    1. John L. Baird
    2. Marconi
    3. Landstein
    4. **Hans Lippershey**

4. Providing Urban Amenities in Rural Areas (PURA) was the brain child of

   1. C. Rangarajan
   2. **A.P.J. Abdul Kalam**
   3. Kasthuri Rangan
   4. Siva Rama Krishnan

5. Chief Justice of India at present is

   1. Justice Dipak Mishra
   2. Justice Patanjali Sastry
   3. **Justice Ranjan Gogoi**
   4. Justice Jagadish Singh Kekhar

6. What does Rector scale measure

   1. Humidity
   2. Cyclones
   3. **Earthquakes**
   4. Tides

7. BCG vaccination is injected to get immunity from

   1. **Tuberculosis**
   2. Polio
   3. Smallpox
   4. Cholera

8. The expanded form of NIOS is

1. National Institute of Organic Saplings
2. **National Institute of Open Schooling**
3. National Institute of Organized Sectors
4. National Institute of Organized Service

9. National Cadet Corps has completed _____ years of its existence

1. **70**
2. 69
3. 77
4. 60

10. One day Pelican Festival was held on February 4th 2018 in

1. **Atapaka Bird Sanctuary at Kolleru**
2. Nelapattu Bird Sanctuary at Nellore
3. Rangannathittu Bird Sanctuary in Karnataka
4. Vedanthangal Bird Sanctuary in Tamil Nadu

11. Who was the first man to set foot on the moon

1. **Neil Armstrong**
2. Yuri Gagarin
3. Valentina Tereshkova
4. Sunita Williams

12. The number of red balls in snooker

1. 13
2. **15**
3. 17
4. 20

13. The present Cabinet Minister for Minority affairs is

1. Piyush Goyal
2. **Muktar Abbas Naqvi**
3. Dharmendra Pradhan
4. Prakash Javadekar

14. Present Chief Election Commissioner in India is

1. **Sunil Arora**
2. K.K. Venugopal
3. Mangoo Singh
4. Om Prakash Rawat

15. Mahavira was born at

1. Kapilavastu
2. Pataliputra
3. **Kundalgram**
4. Peshawar

16. Megasthanese visited the court of

1. Ajatasatru
2. **Chandragupta Maurya**
3. Bimbisara
4. Bindusara

17. Most spoken language in the World

1. English
2. **Chinese**
3. Latin
4. Grease

18. The deepest point in the Pacific Ocean is called

1. **Mariana Trench**
2. Burmudas Trench
3. Sunda Trench
4. Java Trench

19. Right to property was removed from fundamental rights through this amendment in the constitution

1. 42
2. 356
3. **44**
4. 360

20. The founder of Arya Samaj

1. Swami Vivekananda
2. **Swami Dayananda Saraswathi**
3. Swami Virajananda Saraswathi
4. Swami Swarupananda Saraswathi

21. ‘European learning would enable Indians to recognise the advantages that flow from the expansion of trade and commerce, and make them see the importance of developing the resources of the country.’ Which one of these emphasized on the above ‘Education for Commerce’?

1. Ishwar Bhai Patel Committee 1977
2. **Woods Despatch 1854**
3. Hartog Committee-1929
4. Hunter Commission-1882-83

22. Pabajja, the initiation of preliminary ordination for a child of 8 years willing to join the process of education is a ceremony under

1. **Buddhist Period**
2. Jain Period
3. Ancient Vedic Period
4. Post- Vedic Period

23. Which of these is among the subjects taught in Madrasa during Medieval Period?

1. Sociology, Tafsir, Hadis
2. **Tafsir, Hadis, Fiqh**
3. Urdu, Persian, Tafsir
4. Hadis, Fiqh, Sociology

24. What was the name given to the teacher in Post Vedic Period?

1. Guru
2. Deva
3. Chari
4. **Acharya**

25. Which is a defect of the teacher's professional organizations in India?

1. Lack of infrastructural facilities in teacher's professional organizations
2. Availability of long range academic programmes
3. **Lack of unity among different organizations**
4. Regular organization of programmes for the improvement of professional competence of teachers

26. If the student teacher is admitted into a teacher education institution as fresher from colleges without having any training earlier, it is called as

1. Extension teacher education
2. In- service teacher education
3. Collegiate teacher education
4. **Pre- service teacher education**

27. Which of these involve in affiliating institutions conducting examinations at the Secondary and senior levels and developing and updating curriculum and textual materials?

1. **CBSE**
2. NCERT
3. UGC
4. DIET

28. Which is a function of University Departments of Teacher Education?

1. **Developing the Post- Graduate studies and research work**
2. Determining the standard of teacher education institutions
3. Developing a guideline for general teacher education program
4. Organizing extension programmes with collaboration of NCERT, NCTE, UGC

29. ‘Population growth in cities under percentages’, ‘family members versus consumption of consumable articles under direct and indirect proportion’ shows correlation between Mathematics and ____

1. Health Education
2. **Population education**
3. Urban development
4. Depletion of resources

30. Which of these investments has the longest gestation periods?

1. Shares
2. Investments in Small scale business
3. Real estate investments
4. **Educational Investments**

31. ‘Diversity among children is to be viewed as a gift, not a problem for teachers’. This statement where inclusion is given due value was given by

1. **The 46th Session of UNESCO’s International Conference in Education, Geneva, 2001**
2. UNICEF, 2000
3. Persons with Disability Act,1995
4. Dakar Framework for Action, 2000

32. Andhra Pradesh Government initiated Mid-day meal programme for Junior Colleges in August 2018. What is the objective behind this scheme?

1. To maintain regularity and punctuality in colleges
2. **To reduce the drop-out rate in Junior Colleges**
3. To make teachers follow strict schedule
4. To motivate more girls to join Govt. Junior colleges and not private colleges

33. As per RTE Act 2009, every child completing his elementary education shall be

1. Awarded with cash prize
2. **Awarded with a certificate**
3. Awarded with a memento
4. Awarded with School kit for next course

34. According to the National Commission for Protection of Child Rights (NCPCR), the Child is defined as

1. a person in the 0 to 8 years age group.
2. a person in the 3 to 8 years age group.
3. a person in the 6 to 14 years age group.
4. **a person in the 0 to 18 years age group.**

35. If any applicant mutilates or destroys a record during inspection of records then,

1. PIO will ignore the issue
2. **PIO will lodge a criminal complaint immediately**
3. PIO will ask penalty on the spot from the person
4. PO will make a copy of the same and let the matter go off

36. Salary of a Chief Information Commissioner is same as

1. The President
2. The Prime Minister
3. The Chief Justice of India
4. **The Chief Election Commissioner**

37. As per NCF 2005, which is an intellectual space for teachers, learners and members of the community to deepen their knowledge and connect with the wider world?

1. School brochure
2. Community theatre
3. Science Laboratory
4. **School library**

38. As per NCF 2005, to widen teachers' choices and provide for the diversity in children's needs and interests, there is a need for

1. Availability of multiple examination pattern
2. Availability of online resources
3. **Availability of multiple textbooks**
4. Availability of play materials

39. As per NCF 2005, reducing stress and enhancing success in examinations necessitate:

1. a shift towards shorter examinations

2. a shift towards content-based testing to problem solving skills and understanding

3. a shift towards oral form of examination

4. a shift towards no examination system

40. According to NCF 2005, which is the key feature of systemic reform which implies the system's capacity to reform itself by enhancing its ability to remedy its own weaknesses and to develop new capabilities?

1. Quantitative development

2. Teaching competency

3. Quality concern

4. Organizational development

41. Child gains control over its head first then arms and legs last. This is called as

1. Proximodistal Direction

2. Cephalo-Caudal Direction

3. Continuous Development

4. Specific Development

42. Which is the stage of moral development in social system morality

1. Stage 3

2. Stage 2

3. Stage 4

4. Stage 5

43. A newly born child responds on reflexive level sucking and crying with gross bodily activity performed in

1. 0 to 1 month

2. 1 to 4 months

3. 4 to 8 months

4. 8 to 12 months

44. The identity status in which individuals are in the midst of exploring alternatives but have not yet made a commitment

1. Identify Diffusion

2. Identify Foreclosure

3. Identify moratorium

4. Identify Achievement

45. Appropriate use of language in different controls is

1. Phonology

2. Syntax

3. Semantics

4. Pragmatics

46. A relatively permanent influence on behavior, knowledge and thinking skills which comes out through experiences

1. Learning

2. Thinking

3. Problem Solving

4. Creativity

47. A child who is good at utilizing rhyme, rhythm, music, visual impression, colour and pictures, looks for analogies and patterns is said to be the function of

1. Right Brain

2. Left Brain

3. Integrated Mode

4. Learning

48. Children learn to walk, sit, run, climb, pick up objects. This is by

1. Trial and Error Learning

2. Classical Conditioning

3. Observational Learning

4. Social Learning

49. Taking a positive reinforcer away from an individual

1. Time Out

2. Response Cost

3. Punishment

4. Extinction

50 . The belief that one can master a situation and produce positive outcome is

1. Self-Concept

2. Self-Esteem

3. Self-Efficacy

4. Self-Regulation

51. A student deficient in physical activities may show good result in academic field

1. Identification
2. **Compensation**
3. Regression
4. Project

52. Ability to understand and effectively interact with others

1. Naturalist Skills
2. Verbal Skills
3. **Interpersonal Skills**
4. Intrapersonal Skills

53. A test that is used to predict a students ability to learn a skill or accomplish something with further education and training

1. **Aptitude Test**
2. Achievement Test
3. Ability Test
4. Attitude Test

54. Learning that occurs when students work in small group to help each other learn

1. **Cooperative Learning**
2. Collaborative Learning
3. Group Learning
4. Transfer of Learning

55. Assessment during the course of instruction rather than after it is completed

1. Summative Assessment
2. Continuous and Comprehensive Assessment
3. Pre Instructional Assessment
4. **Formative Assessment**

56. A style that allows students considerable autonomy but provides them with little support for developing skills

1. Authoritative Classroom Management Style
2. Authoritarian Classroom Management Style
3. **Permissive Classroom Management Style**
4. Withitness

57. Reasoning from the general to the specific is

1. Inductive Reasoning
2. **Deductive Reasoning**
3. Transductive Reasoning
4. Critical Thinking

58. A students general knowledge about the world is

1. Episodic Memory
2. Short Term Memory
3. **Semantic Memory**
4. Implicit Memory

59. Students attributing their failure to the stiff question paper is using defense mechanism of

1. Rationalization

2. Compensation

3. Projection

4. Denial

60. “Ink-blot test” is used to measure

1. Achievement

2. Personality

3. Attitude

4. Creativity

CONTENT

61. The wavelength of the radiation emitted, when in a hydrogen atom electron falls from infinity to stationary state, is
($R_H = 1.097 \times 10^7 m^{-1}$)

1. 9.1×10^{-8}mm
2. 192 nm
3. 406 nm
4. **91 nm**

62. The orbital angular momentum for an electron revolving in an orbit is $\frac{h}{2\pi}\sqrt{l(l+1)}$. This momentum for a "p" electron is:

1. $\frac{h}{2\pi}$
2. $\sqrt{2}\ \frac{h}{2\pi}$
3. $+\frac{1}{2}\frac{h}{2\pi}$
4. zero

63. In Bohr series of lines of hydrogen spectrum, third line from the red end correspond, to which one of the following inner orbit jumps of electron for Bohr's orbit in an atom of hydrogen.

1. $4 \rightarrow 1$
2. $2 \rightarrow 5$
3. $3 \rightarrow 2$
4. **$5 \rightarrow 2$**

64. Uncertainly in the position of an electron (mass = 9.1×10^{-31}kg) moving with a velocity 300 m/s accurate upto 0.001% will be: ($h = 6.63 \times 10^{-34}$J.s)

1. 19.2×10^{-2} m
2. 5.76×10^{-2} m
3. **1.92×10^{-2} m**
4. 3.84×10^{-2} m

65. A gas absorbs photon of 355 nm and emits at two wavelength. If one of the emission is at 680 nm the other is at:

1. 1035 nm
2. 325 nm
3. **743 nm**
4. 518 nm

66. The density of neon will be highest at:

1. STP
2. **0° C, 2 atm**
3. 273° C, 1 atm
4. 273° C, 2 atm

67. The rate of diffusion of methane at a given temperature is twice that of gas X. The molecular weight of X is

1. **64.0**
2. 32.0
3. 4.0
4. 8.0

68. In Vander Waals equation of state for a non-ideal gas, the term that accounts for intermolecular forces is

1. (V – b)
2. RT
3. $\left(\mathbf{P} + \frac{\mathbf{a}}{\mathbf{V}^2}\right)$
4. RT^{-1}

69. The ratio between the root mean square speed of H_2 at 50K and that of O_2 at 800 K is

1. 4
2. 2
3. **1**
4. $\frac{1}{4}$

70. The compressibility factors for a real gas at high pressure is

1. $1+\frac{RT}{Pb}$
2. 1
3. $\mathbf{1+\frac{Pb}{RT}}$
4. $1-\frac{Pb}{RT}$

71. The correct relationship between free energy change in a reaction and the corresponding equilibrium constant Kc is

1. $\Delta G^{\ominus} = RTlnKc\ 2.303$
2. $\mathbf{-\Delta_r G^{\ominus} = RTlnKc}$
3. $\Delta_r G = RTlnKc\ 2.303$
4. $-\Delta_r G = RTlnKc\ 2.303$

72. On the basis of following thermochemical data [ΔrG^{O} $H^{+}(aq) = 0$]

$H_2O_{(l)} \rightarrow H^{+}(aq) + OH^{-}(aq);\ \Delta H = 57.32 kJ$

$H_2(g) + \frac{1}{2}O_2(g) \rightarrow H_2O_{(l)};\ \Delta H = -286.20\ kJ$

The value of enthalpy of formation of OH^{-} ion:

1. – 22.88 KJ
2. **– 228.88 KJ**
3. + 228.88 KJ
4. – 343.52 KJ

73. In view of the signs of ΔrG^{O} for the following reactions

$PbO_2 + Pb \rightarrow 2PbO\ ;\ \Delta rG^{O} < O$

$SnO_2 + Sn \rightarrow 2SnO\ ;\ \Delta rG^{O} > O$

1. For lead + 4, for tin + 2
2. For lead + 2, for tin + 2
3. For lead + 4, for tin + 4
4. **For lead + 2, for tin + 4**

74. For the reaction: $2NO_{2(g)} \rightleftharpoons 2NO_{(g)} + O_{2(g)}$

$K_c = 1.8 \times 10^{-6}$ at 184° C and R = 0.083 Lit. atm.$K^{-1}mol^{-1}$

When K_p and K_c are compared at 184° C, it is found that

1. **$K_p > K_c$**
2. $K_p < K_c$
3. $K_p = K_c$
4. $K_p \times K_c$ depends upon pressure of gases

75. The exothermic formation of ClF_3 is represented by the equation $Cl_{2(g)} + 3F_{2(g)} \rightleftharpoons 2ClF_{3(g)} \quad \Delta H = -329\,KJ/mol$ one of the following will increase the quantity of ClF_3 in an equilibrium mixture of Cl_2, F_2 and ClF_3

1. Increasing the temperature
2. Removing Cl_2
3. Increasing the volume of container
4. **Adding F_2**

76. A definite amount of solid NH_4HS is placed in a flask already containing ammonia gas at a certain temperature and 0.50 atm. Pressure NH_4HS decomposes to give NH_3 and H_2S and at equilibrium total pressure in the flask is 0.84 atm. The equilibrium constant for the reaction is

1. 0.30
2. 0.18
3. 0.17
4. **0.11**

77. For the following three reactions 1, 2 and 3 equilibrium constants are given

(a) $CO_{(g)} + H_2O_{(g)} \rightleftharpoons CO_{2(g)} + H_{2(g)}$; K_1

(b) $CH_{4(g)} + H_2O_{(g)} \rightleftharpoons CO_{(g)} + 3H_{2(g)}$; K_2

(c) $CH_{4(g)} + 2H_2O_{(g)} \rightleftharpoons CO_{2(g)} + 4H_{2(g)}$; K_3

One of the following equations is correct:

1. $K_1\sqrt{K_2} = K_3$
2. $K_2 \cdot K_3 = K_1$
3. **$K_3 = K_1 \cdot K_2$**
4. $K_3 \cdot K_2^3 = K_1^2$

78. Ksp of MX_4 and solubility of MX_4 are related by
(Solubility of MX_4 is S mol/L)

1. $\mathbf{S = [Ksp / 256]^{1/5}}$

2. $S = [128\,Ksp]^{1/4}$

3. $S = [256\,Ksp]^{1/5}$

4. $S = [Ksp / 128]^{1/4}$

79. The first and second dissociation constants of an acid H_2A are 1.0×10^{-5} and 5.0×10^{-10}. The overall dissociation constant of the acid will be

1. 5.0×10^{-5}
2. 5.0×10^{15}
3. $\mathbf{5.0 \times 10^{-15}}$
4. 0.2×10^{-5}

80. Number of litres of water that must be added to 1L of an aqueous solution of HCl with a pH of 1 to create an aqueous solution with pH of 2 is

1. 10 L
2. 0.9 L
3. 2.0 L
4. **9.0 L**

81. One of the following statements is not true

1. pH of 1×10^{-8} M HCl is 8

2. pH of 1×10^{-2} M HNO_3 is 2

3. Conjugate base of $H_2PO_4^-$ is HPO_4^{2-}

4. pH + pOH = 14 for all aqueous solutions

82. Na and Mg crystallize in bcc and fcc type crystals respectively, then the number of atoms of Na and Mg present in the unit cell of their respective crystal is

1. 4 and 2

2. 9 and 14

3. 14 and 9

4. 2 and 4

83. To get n-type semiconductors, the impurity to be added to silicon should have one of the following number of valence electrons

1. 1

2. 2

3. 3

4. 5

84. Total volume of atoms present in a body centred cubic unit cell of a metal (r is atomic radius)

1. $\frac{20}{3}\pi r^3$
2. $\frac{24}{3}\pi r^3$
3. **$\frac{8}{3}\pi r^3$**
4. $\frac{16}{3}\pi r^3$

85. Packing efficiency in ccp structure and body centred cubic structure are respectively

1. **74% and 68%**
2. 30% and 26%
3. 26% and 32%
4. 32% and 48%

86. The elevation in boiling point of a solution of 13.44gm of $CuCl_2$ in 1kg water will be
(molecular weight of $CuCl_2$ = 134.4 Kb = 0.52 K molality^{-1})

1. **0.16**
2. 0.05
3. 0.1
4. 0.2

87. A mixture of ethyl alcohol and propyl alcohol has a vapour pressure of 290 mm at 300K. The vapour pressure of ethyl alcohol is 350. If the mole fraction of propyl alcohol is 0.4 its vapour pressure at the same temperature will be

1. 350
2. **200**
3. 700
4. 370

88. Freezing point of an aqueous solution is –0.186°C. Elevation of boiling point of the same solution is:

(K_b = 0.512 K molality^{-1} and K_f = 1.86 K molality^{-1})

1. 0.186°C
2. **0.0512°C**
3. 0.092°C
4. 0.273°C

89. A mixture of two liquids A and B show –ve deviation when:

1. ΔV mix is + ve
2. A – B interaction is weaker than A – A and B – B interactions.
3. ΔH mix is + ve
4. **A – B interaction are stronger than A – A and B – B interactions**

90. False statement among the following is

1. Two sucrose solutions of the same molality prepared in different solvents have the same Δ Tf

2. Osmotic pressure $\pi = MRT$

3. Osmotic pressure for 0.01M aqueous solution
$BaCl_2 > KCl > CH_3COOH >$ sucrose

4. The vapour pressure of a component over a solution is proportional to its mole fraction

91. Emf of cell in terms of reduction potential of its left and right electrode is

1. $E = E_{left} - E_{right}$

2. $E = E_{left} + E_{right}$

3. $E = E_{right} - E_{left}$

4. $E = -[E_{right} + E_{left}]$

92. The E^o M^{3+}/M^{2+} values for Cr, Mn, Fe and Co are 0.41, +1.57, + 0.77 and 1.97 V respectively. For one of these metals the change in oxidation state from +2 to +3 is easiest

1. Co

2. Mn

3. Fe

4. Cr

93. For the redox change:

$$\underset{0.1M}{Zn_{(s)}} + Cu^{2+} \rightarrow \underset{1M}{Zn^{2+}} + Cu_{(s)}$$

E cell for this change will be:

E° cell is 1.10V

1. 1.07 V

2. 0.82 V

3. 2.14 V

4. 180 V

94. For a first order reaction (A) → products, the concentration of A changes from 0.1 M to 0.025 M in 40 min. The rate of reaction when the concentration of A is 0.01M is

1. 1.73×10^{-5} M/min

2. 3.47×10^{-4} M/min

3. 3.47×10^{-5} M/min

4. 1.73×10^{-4} M/min

95. For a reaction ½ A → 2B rate of disappearance of A is related to the rate of appearance of B by the expression

1. $-\frac{d[A]}{dt} = \frac{1}{2}\frac{d[B]}{dt}$

2. $\mathbf{-\frac{d[A]}{dt} = \frac{1}{4}\frac{d[B]}{dt}}$

3. $-\frac{d[A]}{dt} = \frac{d[B]}{dt}$

4. $-\frac{d[A]}{dt} = 4\frac{d[B]}{dt}$

96. The half life period for a first order reaction is 6.93 min. The time required for the completion of 99% of the chemical reaction will be

1. 230.3 min
2. 23.03 min
3. **46.06 min**
4. 460.6 min

97. The rate of a chemical reaction doubles for every 10°C rise of temperature. If the temperature is raised by 50°C the rate of the reaction increases by about

1. 10 times
2. 24 times
3. **32 times**
4. 64 times

98. 3 gms of activated charcoal was added to 50 ml of acetic acid solution (0.06N) in a flask. After an hour it was filtered and the strength of the filtrate was found to be 0.042N. The amount of acetic acid adsorbed (per gram of charcoal) is

1. **18 mg**
2. 36 mg
3. 42 mg
4. 54 mg

99. One of the following is not correct for physical adsorption.

1. Adsorption is spontaneous
2. Both enthalpy and entropy of adsorption are negative
3. Adsorption on solid is reversible
4. **Adsorption increases with increase in temperature**

100. The oxidation state of chromium in the final product formed by the reaction between KI and acidified potassium dichromate solution is

1. **+ 3**
2. + 2
3. + 6
4. + 4

101. The oxidation number of Cl in bleaching powder is

1. Zero
2. – 1
3. + 1
4. **–1 and +1**

102. In the balanced chemical reaction

$$IO_3^- + aI^- + bH^+ \rightarrow cH_2O + dI_2$$

a, b, c and d respectively are

1. 5, 6, 5, 5
2. 5, 3, 6, 3
3. 3, 5, 3, 6
4. **5, 6, 3, 3**

103. One of the following sets represents iso electronic species

1. Be, Al^{3+}, Cl^{-}
2. Ca^{2+}, Cs^{+}, Br
3. Na^{+}, Ca^{2+}, Mg^{2+}
4. **N^{3-}, F^{-}, Na^{+}**

104. In which of the following arrangements the order is not correct according to the property indicated against it

1. Increasing size : $Al^{3+} < Mg^{2+} < Na^{+} < F^{-}$
2. **Increasing IE_1 : B < C < N < O**
3. Increasing EA_1 : I < Br < F < Cl
4. Increasing metallic radius : Li < Na < K < Rb

105. The correct order of electron gain enthalpy with negative sign of F, Cl, Br and I is

1. I > Br > Cl > F
2. F > Cl > Br > I
3. **Cl > F > Br > I**
4. Br > Cl > I > F

106. Number of sigma bonds in P_4O_{10} is

1. 6
2. 7
3. 17
4. **16**

107. In XeF_2, XeF_4 and XeF_6 the number of lone pair of electron on Xe are respectively

1. 2, 3, 1
2. 1, 2, 3
3. 4, 1, 2
4. **3, 2, 1**

108. One of the following molecule/ions doesnot contain unpaired electron

1. O_2
2. **O_2^{2-}**
3. B_2
4. N_2^+

109. The molecule which is bent T-shaped

1. BeF_2
2. BCl_3
3. NH_3
4. **ClF_3**

110. Syngas among the following is

1. **$CO + H_2$**
2. $CO + N_2$
3. SO_2
4. H_2S

111. One of the following undergoes reduction with H_2O_2 in an acidic medium

1. Mn^{2+}
2. **HOCl**
3. PbS
4. Fe^{2+}

112. When zeolites (hydrated sodium aluminium silicate) is treated with hard water,the sodium ions are exchanged with

1. H^+ ion
2. **Ca^{2+} ion**
3. SO_4^{2-} ion
4. OH^- ion

113. The least powerful reducing agent among alkali metals is

1. Li
2. **Na**
3. K
4. Cs

114. The alkaline earth metal sulphate that has its hydration enthalpy greater than its lattice enthalpy is

1. **Be SO_4**
2. Ra SO_4
3. Ba SO_4
4. Sr SO_4

115. The following compounds have been arranged in order of their decreasing thermal stabilities. Identify the correct order

$BaCO_3$ (I) $MgCO_3$ (II) $CaCO_3$ (III) $BeCO_3$ (IV)

1. I > III > II > IV

2. IV> III > II > I

3. III > II > I > IV

4. II > IV > I > III

116. Property of alkaline earth metals that increases with their atomic number is

1. Ionisation energy

2. Solubility of their hydroxides

3. Solubility of their sulphates

4. Electro negativity

117. One of the following is a correct statement

1. B_2H_6 $2NH_3$ is known as inorganic benzene

2. Boric acid is a protonic acid

3. B_2H_6 molecule has a planar structure

4. Boric acid acts as Lewis acid

118. Incorrect reaction of diborame among the following

1. $B_2H_{6(9)} + 6H_2O_{(e)} \rightarrow 2B(OH)_3(aq) + 6H_{2(g)}$

2. $B_2H_6 + 2NMe_3 \rightarrow 2BH_3 \cdot NMe_3$

3. $B_2H_6 + 2CO \rightarrow 2BO + C_6H_6$

4. $3B_2H_6+6NH_3 \rightarrow 3[BH_2(NH_3)_2]^+[BH_4]^- \xrightarrow{heat} 2B_3N_3H_6+12H_2$

119. The strongest oxidising agent among the following is

1. Al^{3+}
2. Ga^{3+}
3. In^{3+}
4. **Tl^{3+}**

120. Aluminium chloride in acidified aqueous solution does not contain

1. **Al_2O_3**
2. $[Al(H_2O)_6]^{3+}$
3. H_3O^+
4. Cl^-

121. When concentrated nitric acid is added to aluminum metal one of the following changes takes place

1. Liberates dihydrogen
2. Liberates nitrogen dioxide
3. Liberates nitrous oxide
4. **Concentrated nitric acid renders aluminium passive**

122. One of the following halides doesnot exist

1. $SiCl_4$
2. GeI_4
3. SnI_4
4. **PbI_4**

123. The element that reacts with steam

1. C
2. Si
3. **Sn**
4. Pb

124. One of the following statements is wrong

1. **The stability of hydrides increases from NH_3 to BiH_3 in group 15 of the periodic table.**
2. Nitrogen cannot form dπ-pπ bond.
3. Single N – N bond is weaker than the single P – P bond.
4. N_2O_4 has two resonance structures.

125. One of the following properties is not shown by NO

1. It is a neutral oxide
2. **It is diamagnetic in gaseous state**
3. It combines with oxygen to form nitrogen dioxide
4. Its bond order is 2.5

126. The number of hydrogen atoms attached to phosphorus atom in hypophosphorus acid is

1. **Two**
2. Zero
3. One
4. Three

127. The brown coloured substance present in brown ring (a test for nitrates) is

1. $Fe(NO_3)_2$
2. $Fe(NO_3)_3$
3. $Fe(H_2O)_6$
4. **$[Fe(H_2O)_5\ NO]^{2+}$**

128. One of the following statements is wrong about ozone

1. High concentrations of ozone can be dangerously explosive
2. **Ozone molecule is linear**
3. Ozone is violet black in solid state
4. Ozone is dark blue liquid

129. One of the following statements regarding sulphur is incorrect

1. S_2 molecule is paramaprelic
2. At 369K both α and β form of sulphur are stable
3. At elevated temperatures (~1000 K) S_2 molecules are dominant
4. **The oxidation state of sulphur is never less than +4 in its compounds**

130. There is no S – S bond in

1. $S_2O_4^{2-}$
2. $S_2O_5^{2-}$
3. $S_2O_3^{2-}$
4. **$S_2O_7^{2-}$**

131. In the reaction

$2Ag + 2H_2SO_4 \rightarrow Ag_2SO_4 + 2H_2O + SO_2$

H_2SO_4 acts as

1. Reducing agent
2. **Oxidising agent**
3. Catalytic agent
4. Dehydrating agent

132. One among the following is the most reactive

1. Cl_2
2. Br_2
3. I_2
4. **ICl**

133. One of the following halogens exhibit only one oxidation state

1. **Fluorine**
2. Chlorine
3. Bromine
4. Iodine

134. The correct order of the thermal stability of hydrogen halide is

1. HI > HBr > HCl > HF
2. **HF > HCl > HBr > HI**
3. HCl < HF > HBr < HI
4. HI > HCl < HF > HBr

135. One of the following reaction of xenon compounds is not feasible

1. **$Xe + 4F_2 \rightarrow XeF_8$**

2. $3Xe\ F_4 + 6H_2O \rightarrow 2Xe + XeO_3 + 12\ HF + 1.5O_2$

3. $2XeF_2 + 2H_2O \rightarrow 2Xe + 4AF + O_2$

4. $XeF_4 + O_2F_2 \rightarrow XeF_6 + O_2$

136. Fluorine reacts with excess of xenon at 673K and 1 bar and gives

1. XeF_4

2. **XeF_2**

3. XeF_6

4. They donot react as Xe is inert

137. One of the following is planar

1. XeO_4

2. XeO_3F

3. $XeO_2\ F_2$

4. **XeF_4**

138. The number of geometric isomers that can exist for square planar complex $[Pt(Cl)(py)(NH_3)(NH_2OH)]^+$ is :
(Py = pyridine)

1. 2

2. **3**

3. 4

4. 6

139. The octahedral complex of a metal ion M^{3+} with four monodentate ligands L_1, L_2, L_3 and L_4 absorb wavelengths in the region of red, green, yellow and blue respectively. The increasing order of ligand strength of the four ligands is

1. $L_4 < L_3 < L_2 < L_1$
2. **$L_1 < L_3 < L_2 < L_4$**
3. $L_3 < L_2 < L_4 < L_1$
4. $L_1 < L_2 < L_4 < L_3$

140. One of the following complex species is not expected to exhibit optical isomerism

1. $[Co(en)_3]^{3+}$
2. $[Pt(en)_3\ Cl_2]^{2+}$
3. $[Cr(C_2O_4)_3]^{3-}$
4. **$[Co(NH_3)_3(NO_2)_3]$**

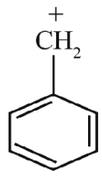
141. In Carius method of estimation of halogen, 250mg of an organic compound gave 141mg of AgBr. The percentage of bromine in the compound is (At.mass Ag = 108; Br = 80)

1. **24**
2. 36
3. 48
4. 60

142. 29.5 mg of an organic compound containing nitrogen was digested according to kjeldahl's method and the evolved ammonia was absorbed in 20 ml of 0.1 M HCl solution. The excess of the acid required 15 ml of 0.1 M NaOH solution for complete neutralization. The percentage of nitrogen in the compound is

1. 29.5
2. 59.0
3. 47.4
4. **23.7**

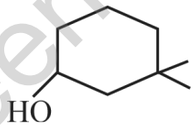
143. The correct order of stability of the below mentioned carbocations is

$CH_2 = CH - CH_2^+$; $CH_3 - CH_2^+$ 

(I) (II) (III)

1. III > II > I
2. II > III > I
3. I > II > III
4. **III > I > II**

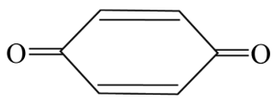
144. The IUPAC name of the given compound is

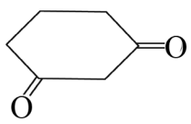


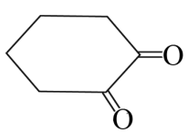
1. 1, 1-dimethyl-3-cyclohexanol
2. 1, 1-dimethyl-3-hydroxy cyclohexane
3. **3, 3-dimethyl-1-cyclohexanol**
4. 3, 3-dimethyl-1-hydroxy cyclohexane

145. Tautomerism is not exhibited by

1. C_6H_5–CH=CH –OH

2. 

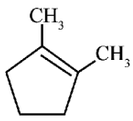
3. 

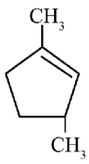
4. 

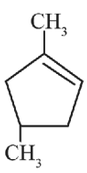
146. The number of sterioisomers possible for a compound of the molecular formula CH_3 – CH =CH – CH (OH)–CH_3 is

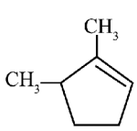
1. 3
2. 2
3. 4
4. 6

147. The compound which gives 5-keto-4-methylhexanol upon Ozonolysis

1. 

2. 

3. 

4. 

148. One of the following reaction will yield 2, 2-dibromopropane

1. **$CH_3 - C \equiv CH + 2HBr \rightarrow$**

2. $CH_3 - CH = CHBr + HBr \rightarrow$

3. $CH \equiv CH + 2HBr \rightarrow$

4. $CH_3 - CH = CH_2 + HBr \rightarrow$

149. The reaction of toluene with Cl_2 in presence of $FeCl_3$ predominantly produces

1. Benzoyl chloride
2. Benzyl chloride
3. **o - and p-chloro toluene**
4. m-chloro toluene

150. Number of optically active compounds that are possible on monochlorination 2-methyl butane is

1. 8
2. 2
3. **4**
4. 6

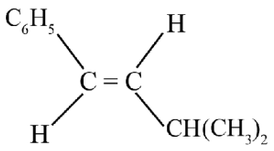
151. The correct order of the acid strength of the following phenols is

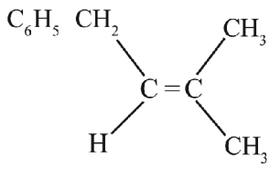
(I) Phenol (II) P-cresol
(III) m-nitrophenol (IV) P-nitrophenol

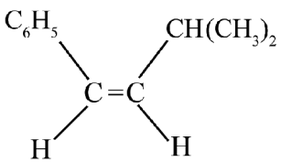
1. III > II > I > IV
2. **IV > III > I > II**
3. II > IV > I > III
4. I > II > IV > III

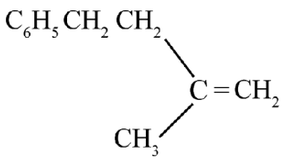
152. The main product of the following reaction is

$C_6H_5CH_2CH(OH)CH(CH_3)_2 \xrightarrow{\text{con } H_2SO_4} ?$

1. 

2. 

3. 

4. 

153. The most suitable reagent for the conversion of

$R–CH_2\ OH \rightarrow R–CHO$ is

1. $KMnO_4$
2. $K_2Cr_2O_7$
3. MnO_2
4. **PCC**

154. Aspirin is known as

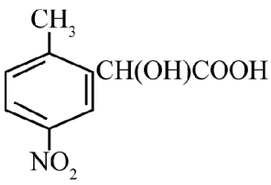
1. Acetyl salicylic acid

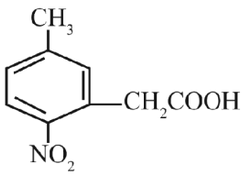
2. Phenyl salicylate

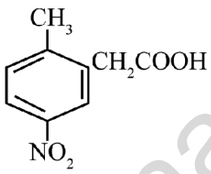
3. Acetyl salicylate

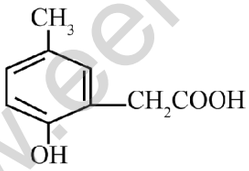
4. Methyl salicylic acid

155. p-nitrotoluene reacts with chloroform in alkaline medium to give compound (A) which adds HCN to form (B). (B) on acidic hydrolysis gives chiral carboxylicacid. The structure of the carboxylic acid is

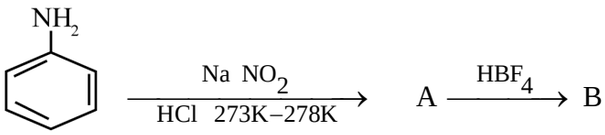
1. 

2. 

3. 

4. 

156. In the Chemical reaction



the compounds, ‘A” and “B” respectively are

1. Nitrobenzene and Fluorobenzene
2. Phenol and benzane
3. **Benzene diazonium chloride and fluoro benzene**
4. Nitrobenzene and Chlorobenzene

157. An Organic compound A on reacting with NH_3 gives B. On heating B, it gives C. C in the presence of KOH reacts with Br_2 to give $CH_3CH_2NH_2$. ‘A’ is

1. $CH_3 - \underset{\displaystyle CH_3}{\overset{\displaystyle |}{CH}} - COOH$
2. $CH_3CH_2CH_2CH_2COOH$
3. **CH_3CH_2COOH**
4. CH_3COOH

158. In the chemical reaction

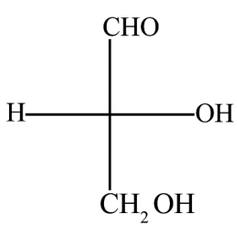
$CH_3CH_2NH_2+CHCl_3+3KOH \rightarrow (A) + (B) +3H_2O$ the compounds (A) and (B) are, respectively

1. C_2H_5CN and 3KCl
2. CH_3CH_2 CO NH_2 and 3KCl
3. C_2H_5 NC and K_2CO_3
4. **C_2H_5NC and 3KCl**

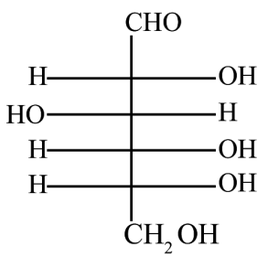
159. Sucrose (cane sugar) is a disaccharide. One molecule of sucrose on hydrolysis gives

1. 2 molecules of glucose
2. 2 molecules of glucose + 1 molecule of fructose
3. **1 molecule of glucose + 1 molecule of fructose**
4. 2 molecules of fructose

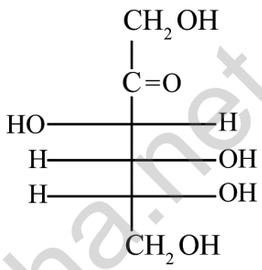
160. Optical rotation of some compounds along with their structure are given below: Which of them have D configuration



(+) rotation
(I)



(+) rotation
(II)



(−) rotation
(III)

1. **I, II, III**
2. II, III
3. I, II
4. III

METHODOLOGY

161. All conclusions made in science are based on

    1. Evidence
    2. Opinion
    3. Hypothesis
    4. Belief

162. This is not a theory

    1. An explanation for how the entire universe was created
    2. An explanation for how species have changed over time
    3. The explanation that the Earth's temperature is rising only as a result of pollution
    4. An equation for the relationship between force , mass and acceleration

163. After observing the melting rates of an ice cube sprinkled with salt and one without salt, the student concluding that salt reduces the freezing point of water, is

    1. Observing
    2. Inferring
    3. Hypothesizing
    4. Measuring

164. This is a question that can best be investigated by a scientist

1. Should I paint the lab white or cream?
2. **Does plant need sunlight to grow?**
3. Does coffee or tea taste better?
4. Which feels softer, cat fur or dog fur?

165. “The moon eclipses the sun, and the great shadow of the earth eclipses the moon.” was deduced by

1. **Aryabhatta**
2. Bhaskaracharya
3. Varahamihira
4. Vatsayana

166. Static Electricity is discovered by

1. Benjamin Franklin
2. **Volta**
3. Coloumb
4. Amphere

167. This is not the contribution of Newton

1. Law of Universal gravitation
2. Laws of Motion
3. Law of cooling
4. **Special relativity**

168. This is an illustration of Correlation between Biology and Chemistry

1. Study of metabolism in living cells/ genetics
2. Census of wild animals like tigers, lions etc,
3. **Study of Physiological activities such as transpiration, conduction of water and salts in plants and animals**
4. Study of human beings related with to their origin, distribution, relationship, culture etc.

169. The creative and critical thinking of students is developed with science refers to this value

1. Moral value
2. **Intellectual value**
3. Cultural value
4. Aesthetic value

170. This is an objective of teaching science

1. To increase pupils' interest in things and phenomena of nature
2. To cultivate scientific temper, objectivity, and critical thinking
3. **To be able to compare the energy output of aerobic and anaerobic respiration**
4. To develop the interest of the pupils in the conservation and utilization of nature.

171. At the knowledge level students will

1. Apply Newton’s Third law of Motion
2. **Recall Boyle’s law**
3. Categorise Animals into Vertebrates and Invertebrates
4. Calculate Velocity and Acceleration

172. This is not a critique of Blooms taxonomy

1. Bloom concentrated his efforts on learning, but there is little about motivation or about classroom management.
2. Bloom’s Taxonomy focuses heavily on how an individual learns and it misses what occurs when there are social forces.
3. **Bloom's Taxonomy is a good heuristic for teachers to understand the varying cognitive, psychomotor, and affective levels of learning.**
4. Bloom’s Hierarchy seems too artificially constructed and learning is not sequential.

173. The objective in asking the question - Am I as ‘explosive’ as Potassium metal in the way I interact with people around me? is related to

1. Knowledge
2. **Valuing**
3. Synthesis
4. Understanding

174. Inductive method involves a thinking process wherein students

1. **Draw a generalisation**
2. Give examples for a law
3. Verify a law
4. See how accurately the law predict events

175. Problem-solving method differs from the lecture and demonstration methods of teaching as the focus of problem solving method is on

1. presenting ideas
2. demonstrating skills
3. presenting concepts
4. **facilitating investigations**

176. Project method in teaching of Science is suited most to

1. strengthen reasoning skill of students
2. **promote scientific method of working**
3. enable understanding of basic concepts in Science
4. enhance numerical abilities of students

177. The best way to teach about concept of rusting is to

1. present the process of rusting using a pictorial chart
2. explain the process of rusting orally
3. **make the students to undertake a project on rusting – its causes and prevention**
4. make the students read aloud about rusting from the science text book

178. In order to achieve the objective of acquisition of science process skills the combination of methods best suited are

1. **Project-cum-Laboratory method**
2. Lecture-cum-Demonstration method
3. Historical-cum-Lecture method
4. Lecture-cum-Scientific method

179. The most appropriate way of explaining the topic “Purification of Water” is

1. Demonstrating the process with the help of a chart
2. Asking the students to make a model of the purification plant
3. **Taking students to plant where the water is purified**
4. Reading from text book

180. This micro skill involves change in body movements, gestures, speech pattern and interaction style

1. Reinforcement
2. **Stimulus variation**
3. Illustration
4. Explanation

181. This is a plan designed to plot out the learning of a student in order that the student reaches a given pre determined knowledge, and education level

1. **Annual Plan**
2. Unit Plan
3. Lesson Plan
4. Period plan

182. This is not a Herbartian step of lesson planning

1. Application
2. Preparation
3. Presentation
4. **Content Analysis**

183. This criteria is not suitable for a good science text book

1. suitable to the age, ability and interest of the students
2. explanation is provided using illustrative pictures
3. language used is simple and clear
4. **designed to suit the requirements of the teacher**

184. These pair of aids represents visual aids

1. **Posters, Transparencies**
2. Audio tapes , Radio recordings
3. Film strips , DVD's
4. Videos , Computer graphics

185. The most concrete experience of the following is

1. students define key terms associated with the structure of DNA
2. **students construct a model of the structure of the DNA molecule**
3. students identify the four nitrogen bases that compose DNA in a chart
4. students summarize the history of human knowledge about DNA

186. Concept mapping is also known as

1. **Mind mapping**
2. Concept diagram
3. Knowledge diagram
4. Word mapping

187. The balance that will be used to verify elasticity is

1. Spring balance

2. Beam balance

3. Physical balance

4. Chemical balance

188. Examples of personal protective equipment do NOT include:

1. goggles and long pants

2. long-sleeve shirts

3. contact lenses

4. lab coats

189. The procedure teachers should use to make Library as an instructional aid is

1. Guiding students to choose books that might be of their interest in the library.

2. Allowing pupils to go to the Library as the need for reference material arises.

3. Sending the students to the library in their free time without instruction

4. Making students to write assignments requiring the pupils to use Library resources.

190. This register contains details of articles which are not liable to be used up or easily broken like magnets, test tube racks, lenses, thermometers etc.

1. Breakable stock register

2. Indent/Order register

3. Permanent stock register

4. Requirement register

191. Presenting the concept of periodic table that it was initially based on atomic weight, later based on atomic number, and finally explained by quantum theory refers to this validity as per NCF (2005)

1. Process Validity
2. **Historical Validity**
3. Environmental Validity
4. Ethical Validity

192. Raman Science Centre and Planetarium are located at

1. Thiruvananthapuram
2. Bangalore
3. Ahmedabad
4. **Nagpur**

193. The Curriculum approach being used by a science teacher who is planning to start with the most concrete concepts first and step-by-step work her way up to the more abstract concepts is

1. Topical approach
2. Concentric approach
3. Integrated approach
4. **Logical approach**

194. Subject Centered curriculum revolves around:

1. Learner
2. Social values
3. **Content**
4. Social problems

195. This is not characteristic feature of syllabus

1. Syllabus formulates curriculum

2. Syllabus is organized from curriculum

3. Syllabus is content based

4. Syllabus is subject centered

196. This is not a characteristic feature of a science fair

1. Research based activity

2. Original concept, publishable

3. Display already established facts and results

4. Research base activity, publishable

197. The student draws neatly the various forms in which energy comes to Earth from the Sun will help in evaluating

1. Knowledge

2. Application

3. Skill

4. Attitude

198. This is not a characteristic of a good question paper

1. Subjectivity

2. Reliability

3. Validity

4. Objectivity

199. This is the purpose of the formative evaluation of students.

1. For assessing the student level of learning

2. For assessing progress of student at the end of term

3. For assessing a project report for grading

4. For awarding a grade for promotion to next level

200. This is not a benefit of diagnostic assessment

1. It guides a teacher in lesson planning

2. It helps teachers to refer students for special education services

3. It helps teachers to identify students who are in need of remedial teaching

4. It helps determine what a student has learnt through instruction