TET CUM TRT – 2018

PGT - PHYSICAL SCIENCE

1. The first and the only lady ruler of Delhi sultanate

    1. Rudrama Devi
    2. Rani Mangamma
    3. Jhansi Lakshmi Bai
    4. Razia Sultana

2. The last British Viceroy of Independent India

    1. Lord Linlithgo
    2. Lord Mountbatten
    3. Lord Wavel
    4. Lord Irvin

3. The only bird that can fly backwards

    1. Crane
    2. Humming bird
    3. Turkey
    4. Parrot

4. The famous dance form of Andhra Pradesh

    1. Kathak
    2. Bharatanatyam
    3. Kuchipudi
    4. Dhandiya Rass

5. National school of Drama was set up in

    1. 1947
    2. 1959
    3. 1970
    4. 1975

6. The first element in the periodic table

    1. Oxygen
    2. Lithium
    3. Hydrogen
    4. Helium

7. The time taken by the light to reach Earth from Sun

    1. 10 minutes 10 seconds
    2. 8 minutes 20 seconds
    3. 12 minutes 10 seconds
    4. 4 minutes 45 seconds

8. The hottest planet in the solar system

    1. Venus
    2. Mercury
    3. Jupiter
    4. Uranus

9. Manabi Bandyopadhyay became the first transgender professor to complete a Ph.D in

    1. Tamil Literature
    2. Bengali Literature
    3. Malayalam Literature
    4. Telugu Literature

10. The three primary colours of light

    1. Red, Green, Blue
    2. Purple, Blue, Orange
    3. Red, Brown, Blue
    4. White, Green, Red

11. Centre for DNA finger printing and diagnostics is located at

    1. Hyderabad
    2. Mumbai
    3. Delhi
    4. Bengaluru

12. Expanded form of ASLV

    1. Aerospace Satellite Launch Vehicle
    2. Agrobased Satellite Launch Vehicle
    3. Augmented Satellite Launch Vehicle
    4. Aeronautical Satellite Launch Vehicle

13. ‘Paradise Lost’ was written by

    1. Shakespeare
    2. John Milton
    3. W.B. Yeats
    4. Walt Whitman

14. Oncology focuses on this disease

    1. Paralysis
    2. Cancer
    3. Heart attack
    4. Mental disorder

15. The largest internal organ of the human body

    1. Gallbladder
    2. Lungs
    3. Heart
    4. Liver

16. The number of eyelids for duck

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

17. National Science Day is observed on

    1. November 14
    2. September 5
    3. February 28
    4. January 12

18. Benarus was renamed as

    1. Myanmar
    2. Varanasi
    3. Yangon
    4. Nippon

19. The country that has largest land mass

    1. England
    2. Russia
    3. India
    4. China

20. The first bank established in India is

    1. Bank of Hindustan
    2. Imperial Bank
    3. Vijaya Bank
    4. Bank of Bharat

21. ‘A first systematic level attempt at tackling the problem of education as a whole and unfolds that a national system of education would take 30 to 40 years to be evolved.’ This is in accordance with_____

1. Hunter Commission-1882-83
2. Wood’s Despatch-1854
3. Hartog Committee-1929
4. Sargent Report- 1944

22. Post-Vedic education is also called

1. Dharmic Education
2. Upanayanic Education
3. Brahmanic Education
4. Swadhyayic Education

23. What was the name given to primary schools attached to a masque where elementary education was imparted in reading and writing Arabic and Persian in Medieval Period?

1. Khangahs
2. Maktabs
3. Madrasas
4. Mahad

24. Which of these was the core subject of Post- Vedic Curriculum?

1. Brahma Vidya
2. Bhuta Vidya
3. Sarpa Vidya
4. Deva-Jana Vidya

25. Teacher Education is offered in all the following ways except-

1. Regular course for 1 or 2 Academic years
2. Evening or vacation courses for 2 Academic years
3. Online course for 2 years plus one year internship at school
4. Correspondence-cum-contact courses for 2 Academic years

26. Short term courses in teacher education of two or three months duration are called ____

1. Certificate courses
2. Diploma courses
3. Collegiate courses
4. Correspondence courses

27. Which of these is a motivating agent for teachers in India?

1. Regular postings and transfers in Government jobs
2. Demotion in case of unusual behaviour during the tenure
3. Professional status, availability of proper resources
4. Pay and allowances in private schools

28. Which of these is a function of professional organization of teachers?

1. Providing welfare services to all the children studying under the guidance of any teacher.
2. Providing field services and field experiences
3. Modifying the educational plans and implementing them as per the government orders
4. Selling periodicals and research monographs

29. A convergent framework that aims at nurturing a spirit of inquiry and creativity, love for Science and Mathematics and effective use of technology amongst children.

1. Rashtriya Shodh Kshetra
2. Inspire Programme
3. Rashtriya Avishkar Abhiyan
4. National Science Research Institute

30. Which of these has minimum role in bringing equalities in the educational opportunities?

1. Integrated child care services
2. Comprehensive Access to Primary Education
3. School Readiness
4. Child Care schemes for parents

31. Which one is odd one out in case of Kasturba Gandhi Balika Vidyalayas?

1. Free Textbooks & Uniforms
2. Day schooling
3. Vocational Training & guidance
4. Medical Facility

32. One of these is a measure suggested in National Population Policy 1976

1. Promotion of research activities in family planning methods
2. Removal of population related issues from school curriculum
3. Girls should be educated only up to secondary level
4. Age of marriage for girls should be 16 years and for boys 18 years.

33. With respect to RTI Act 2005, which work is correctly matched with the fee charged for that?

1. To submit your request to receive information-Rs 10
2. Diskette/ Floppy-Rs 20
3. For each page created/ copied in A-4 or A-3 size paper- Rs 10
4. For inspection of records (first hour)-Rs 20

34. What is the role of PIO if the superior officer orders him not to release information to the requester?

1. PIO is an independent authority under the law and no approval is required.
2. PIO shall wait for the order of superior
3. PIO reaches out to Chief Information Commissioner for the order
4. PIO rejects request malafidely fully or partially

35. According to RTE Act 2009, part time instructors should be appointed for all except

1. Art Education
2. Health and Physical Education
3. Work Education
4. ICT Education

36. As per RTE Act 2009, what is the student – teacher ratio in Class VI to VIII?

1. 1: 30
2. 1:40
3. 1:35
4. 1:25

37. As per NCF 2005, which of these induces an inordinate level of anxiety and stress and promotes rote learning?

1. Literary activities
2. Essay writing competitions
3. Text-based and quiz-type questioning
4. Multiple choice questions with negative marking

38. As per NCF 2005, in no case would children below the age of 16 years be eligible

1. for using mass media for education
2. for admission to a VET programme
3. for taking part in innovative and creative projects
4. for choosing work and Art as a part of schooling

39. As per NCF 2005, mass media can be used to

1. support teacher training and facilitate classroom learning
2. involve students in accumulating information from various sources
3. protect children from self learning
4. supply instructional materials to schools free of cost

40. As per NCF 2005, which of these is a form of learner engagement?

1. Discovering
2. Recalling
3. Imitating
4. Translating

41. A method which is to know oneself and to study intrapersonal relationships

1. Observation
2. Experimentation
3. Questionnaire
4. Introspection

42. A child learns to control large muscles first and then finer movements with smaller muscles is

1. Principle of Predictability
2. Proximodistal Direction
3. Principle of Integration
4. Continuous Development

43. The number of stages in Jean Piaget's theory of Cognitive Development

1. 5
2. 6
3. 4
4. 8

44. The type of social play which 1 to 2 years of child involve in is

1. Parallel Play
2. Solitary Play
3. Co-operative Play
4. Competitive Play

45. A mental process that occurs when a child adjusts to new information

    1. Schema
    2. Accommodation
    3. Assimilation
    4. Organization

46. The idea that some characteristics of an object stay the same even though the object might change

    1. Centration
    2. Animism
    3. Conservation
    4. Seriation

47. Language and thought initially develop independently of each other and then merge was stated by

    1. Piaget
    2. Noam Chomsky
    3. Vygotsky
    4. Skinner

48. Child obeys because adults have superior power. This is

    1. Interpersonal expectations, relationships and conformity
    2. Social conscience orientation
    3. Individualism, instrumental purpose and exchange
    4. Punishment and obedience orientation

49. Teaching new behavior by reinforcing successive approximation to a specified target behavior

1. Prompt
2. Shaping
3. Time out
4. Extinction

50. The “magical number seven, plus or minus two” is described by

1. George Miller
2. Ebbinghaus
3. Terman
4. Binet

51. Ability to think in pictures, visualise a future result, imagine things in mind eye and use it on having a sense of direction is

1. Naturalist Intelligence
2. Logico-Mathematical Intelligence
3. Visual-Spatial Intelligence
4. Bodily Kinesthetic Intelligence

52. Hitting in ball badminton interferes with hitting in shuttle badminton

1. Negative Transfer
2. Positive Transfer
3. Zero Transfer
4. Bilateral Transfer

53. The strategy that involves creating a word from the first letters of the items to be remembered

1. Keyword Method
2. Rhymes
3. Method of Loci
4. Acronyms / Mnemonics

54. A boy must learn to think of himself as a male if his behavior is to be appropriate

1. Self-Concept
2. Sex-Identification
3. Sex Constancy
4. Self-Worth

55. The general mental adaptability to new problems and conditions of life is

1. Personality
2. Intelligence
3. Memory
4. Learning

56. Children are able to remember without understanding

1. Episodic Memory
2. Remote Memory
3. Habit Memory
4. Rote Memory

57. The principle that behavior followed by positive outcomes are strengthened and that behavior followed by negative outcomes are weakend

1. Law of Effect
2. Law of Readiness
3. Positive Reinforcer
4. Negative Reinforcer

58. Applying previous experiences and knowledge to learning or problem solving in a new situation

1. Transfer
2. Learning
3. Memory
4. Thinking

59. A systematic, organized strategy for planning lessons

1. Lesson Planning
2. Unit Planning
3. Term Planning
4. Instructional Planning

60. A classroom arrangement style in which small number of students work in small, closely bunched group is

1. Auditorium Style
2. Offset Style
3. Seminar Style
4. Cluster Style

CONTENT

61. The potential energy of a particle varies with distance 'x' from a fixed origin as $U = \frac{A\sqrt{x}}{x^2 + B}$, where A and B are dimensional constants then dimensional formula for AB is

1. $ML^{\frac{7}{2}}T^{-2}$
2. $ML^{\frac{11}{2}}T^{-2}$
3. $M^2L^{\frac{9}{2}}T^{-2}$
4. $ML^{\frac{13}{2}}T^{-3}$

62. The value of 2.2 + 4.08 + 3.125 + 6.3755 with due regard to significant places is

1. 15.78
2. 15.7805
3. 15.780
4. 15.8

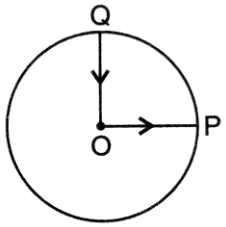
63. If $\vec{A} = 3\hat{i} + 4\hat{j}$ and $\vec{B} = 7\hat{i} + 24\hat{j}$ then the vector having the same magnitude as $\vec{B}$ and parallel to $\vec{A}$ is

1. $5\hat{i} + 20\hat{j}$
2. $15\hat{i} + 10\hat{j}$
3. $15\hat{i} + 20\hat{j}$
4. $20\hat{i} + 15\hat{j}$

64. If the average velocity of a body moving with uniform acceleration under the action of a force is 'v' and the impulse it receives during a displacement of 's' is 'I', the constant force acting on the body is

1. $\frac{Iv}{2s}$
2. $\frac{2Iv}{s}$
3. $\frac{Iv}{s}$
4. $\frac{Is}{v}$

65. A cyclist starts from the center ‘O’ of a circular path of radius 1 km, reaches the edge ‘P’ of the park, then cycles along the circumference and returns to the center along ‘QO’ as shown in the figure. If the round trip takes 10 minutes, the average speed of the cyclist



1. 1 km/hr
2. 6 km/hr
3. 3.14 km/hr
4. 21.4 km/hr

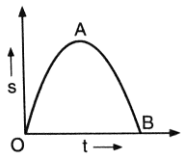
66. A particle of mass ‘m’ is projected with a velocity ‘u’ making an angle of 45° with the horizontal. The magnitude of the angular momentum of the projectile about the point of projection when the particle is at its maximum height ‘h’ is

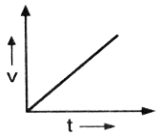
1. Zero
2. $\frac{mu^3}{4\sqrt{2}g}$
3. $\frac{mu^3}{\sqrt{2}g}$
4. $m\sqrt{2gh^3}$

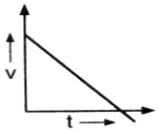
67. A ball is projected upwards. Its acceleration at the highest point is

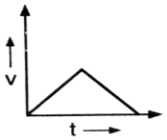
1. Zero
2. Directed upwards
3. Directed downwards
4. Such as cannot be predicted

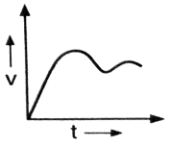
68. Velocity- time graph corresponding to displacement-time graph shown in figure is



1. 

2. 

3. 

4. 

69. When a strip made of iron (α_1) and copper (α_2) is heated (given $\alpha_2 > \alpha_1$)

1. Its length does not change
2. It gets twisted
3. It bends with iron on concave side
4. It bends with iron on convex side

70. A bomb of mass 9 kg explodes into two pieces of masses 3 kg and 6 kg. The velocity of mass 3 kg is 16 m/s, the kinetic energy of mass 6 kg is

1. 96 J
2. 384 J
3. 192 J
4. 768 J

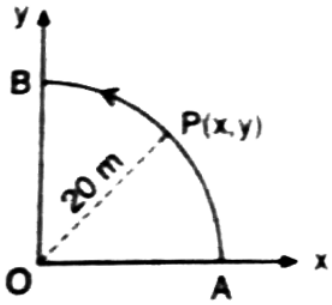
71. The internal energy of an ideal diatomic gas corresponding to volume V and pressure P is U= 2.5PV. The gas expands from 1 litre to 2 liter at a constant pressure of one atmosphere. The heat supplied to gas is

1. 50 J
2. 100 J
3. 250 J
4. 350 J

72. A car sometimes overturns while taking a turn, when it overturns, it is

1. The inner wheel which leaves the ground first
2. The outer wheel which leaves the ground first
3. Both the wheels leave the ground simultaneously
4. Either wheel which leaves the ground first

73. A point P moves in the counter clockwise direction on a circular path as shown in figure. The movement of P is such that it sweeps out a length $s = t^3 - 9$, where s is in meter and t is in second. The radius of the path is 20 m. The acceleration of P when t = 2 s is nearly



1. 13 m/s^2
2. 12 m/s^2
3. 7.2 m/s^2
4. 14 m/s^2

74. If the pressure in a closed vessel is reduced by drawing out some of the gas, the mean free path of two molecules

1. Increases
2. Decreases
3. Remains unchanged
4. Increases or decreases according the nature of the gas

75. A hollow convex lens of glass will behave like a

1. Convex lens
2. Concave lens
3. Glass plate
4. Mirror

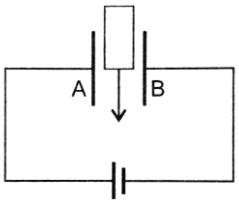
76. The first diffraction minimum due to a single slit diffraction is at 30° for a light of wavelength 5000 A°. The width of the slit is

1. 5×10^{-5} cm
2. 1.0×10^{-4} cm
3. 2.5×10^{-5} cm
4. 1.25×10^{-5}cm

77. If the electric field is given by $5\hat{i} + 4\hat{j} + 9\hat{k}$, the electric flux through a surface of area 20 unit lying in the Y-Z plane will be

1. 100 units
2. 80 units
3. 180 units
4. 20 units

78. An insulator plate is passed between the plates of a capacitor. Then current is



1. Always flows from A to B
2. Always flows from B to A
3. First flows from A to B and then from B to A
4. First flows from B to A and then from A to B

79. The sides of a rectangular block are 2cm, 3cm and 4cm. The ratio of maximum to minimum resistance between its parallel faces is:

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

80. The resistance of the potentiometer wire is 0.9 Ωm^{-1}. The potential gradient is 0.0081 Vcm^{-1}. Then the current in the wire is

1. 0.1 A
2. 0.5 A
3. 0.9 A
4. 1.5 A

81. A particle carrying a charge equal to 100 times the charge on an electron is rotating per second in a circular path of radius 0.8 m. The value of the magnetic field produced at the centre will be (μ_0 = permeability constant)

1. $\frac{10^{-7}}{\mu_0}$
2. $10^{-17}\mu_0$
3. $\frac{10^{-6}}{\mu_0}$
4. $10^{-16}\mu_0$

82. A charged particle experiences magnetic force in the presence of magnetic field. Choose the correct statement.

1. The particle is stationary and magnetic field is perpendicular
2. The particle is moving and magnetic field is perpendicular to the velocity
3. The particle is stationary and magnetic field is parallel
4. The particle is moving and magnetic field is parallel to velocity

83. A metallic ring with a cut is held horizontally and a magnet is allowed to fall vertically through the ring. Then, the acceleration of the magnet is

1. Equal to g
2. Less than to g
3. More than to g
4. Sometimes less and sometimes more than g

84. An air core solenoid has 1000 turns and is one meter long. Its cross-sectional area is $10\,cm^2$. Its self inductance

1. 0.1256 mH
2. 12.56 mH
3. 1.256 mH
4. 125.6 mH

85. At high frequency, the capacitor offers

1. More reactance
2. Less reactance
3. Zero reactance
4. Infinite reactance

86. One of the following is not electromagnetic waves

1. Cosmic rays
2. γ-rays
3. β-rays
4. X-rays

87. Light of frequency 1.5 times the threshold frequency is incident on a photosensitive material, photoelectric current is emitted. If the frequency of light is halved and intensity is doubled, the photoelectric current becomes:

1. 4 times the original current
2. 2 times the original current
3. Half the original current
4. Zero times the original current

88. The ratio of the areas within the electron orbits for the first excited state to the ground state for the hydrogen atom is

1. 2 : 1
2. 4 : 1
3. 8 : 1
4. 16 : 1

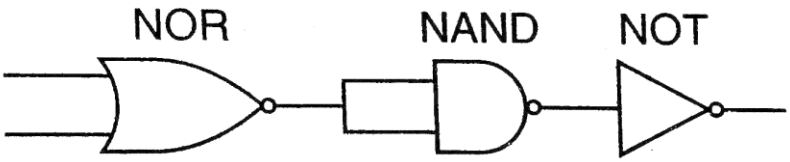
89. In nuclear fission 0.1% mass is converted into energy. The energy released by the fission of 1 kg mass is

1. $2.5\times10^{5}\,kWh$
2. $2.5\times10^{7}\,kWh$
3. $2.5\times10^{9}\,kWh$
4. $2.5\times10^{-7}\,kWh$

90. A radioactive substance has a half-life of four months. Three-fourth of the substance will decay in

1. Three months
2. Eight months
3. Four months
4. Twelve months

91. The circuit given below is equivalent to



1. NOR gate
2. OR gate
3. AND gate
4. NAND gate

92. For a transistor, the current amplification factor is 0.8. The transistor is connected in common-emitter configuration. The change in the collector current when the base current changes by 6 mA is

1. 6 mA
2. 24 mA
3. 4.8 mA
4. 8 mA

93. The vertical height of an almirah is 2 m. Its base is a square of side length 0.4 m and its mass is 200 kg. The maximum height from the floor at which a horizontal force of 490 N should be applied on the almirah so that it does not tilt is

1. 0.6 m
2. 0.8 m
3. 1 m
4. 0.2 m

94. Action and reaction can never balance out because

1. They are equal but not opposite always
2. They are unequal in magnitude even though opposite in direction
3. They are unequal in magnitudes
4. They are equal in magnitude and opposite in direction and they act on different bodies

95. The power of a crane is 6.25 kW and the efficiency of crane is 80%. Then mass of coal it can lift in 1 hour from the mine of 100 m depth

1. 1800 kg
2. 18,000 kg
3. 180 kg
4. 1,80,000 kg

96. The differential equation representing the simple harmonic motion of a particle is $9\frac{d^2y}{dt^2} + 4y = 0$. The time period of the particle is given by

1. $\frac{\pi}{3}$ sec
2. π sec
3. $\frac{2\pi}{3}$ sec
4. 3π sec

97. The displacement at which the kinetic energy of a particle performing simple harmonic motion of amplitude 10 cm is three times its potential energy

1. 5 cm
2. 2.5 cm
3. 7.5 cm
4. 10 cm

98. Two positive point charges are 3 m apart and their combined charge is 20 μC. If the force between them is 0.075 N, the charges are

1. 10 μC, 10 μC
2. 15 μC, 5 μC
3. 12 μC, 8 μC
4. 14 μC, 6 μC

99. A capacitor of 1 mF withstands a maximum voltage of 6 kV while another capacitor 2 mF withstands a maximum voltage of 4 kV. If the capacitors are connected in series, the system will withstand a maximum voltage of

1. 2 kV
2. 4 kV
3. 9 kV
4. 6 kV

100. Two earth-satellites are revolving in the same circular orbit round the center of the earth. They must have the same

1. Mass
2. Angular momentum
3. Kinetic energy
4. Velocity

101. A particle is fired upward with a speed of 20 km/s. The speed with which it will move in interstellar space is

1. 8.8 km/s
2. 16.5 km/s
3. 11.2 km/s
4. 10 km/s

102. As temperature increases the Young's modulus of the material of a wire

1. Decreases
2. Increases
3. Remains the same
4. Become infinite

103. A cube of side a is subjected to a uniform pressure P from all sides. If its bulk modulus is K, then the fractional change of its length is

1. $\frac{P}{K}$
2. $\frac{2P}{K}$
3. $\frac{3P}{K}$
4. $\frac{P}{3K}$

104. Pressure inside two soap bubbles is 1.01 and 1.02 atmosphere. Ratio between their volumes is

1. 102 : 101
2. $(102)^3 : (101)^3$
3. 8 : 1
4. 2 : 1

105. In Bernoulli's theorem which of the following is conserved

1. Energy
2. Mass
3. Linear momentum
4. Angular momentum

106. In Carnot engine efficiency is 40% at hot reservoir temperature T. For efficiency to be 50%, the temperature of hot reservoir is

1. $\frac{T}{5}$
2. $\frac{2T}{5}$
3. $6T$
4. $\frac{6T}{5}$

107. A beaker is completely filled with water at 4 °C. It will over flow if

1. Both heated and cooled above and below 4 °C respectively
2. Heated above 4 °C only
3. Cooled below 4 °C only
4. Not possible

108. A sound wave of wavelength 90 cm in glass is refracted into air. If the velocity of sound in glass is 5400 m/s, the wavelength of the wave in air is

1. 55 cm
2. 55 m
3. 5.5 cm
4. 5.5 m

109. An observer moves towards a stationary source of sound with a velocity one-fifth of the velocity of sound. The percentage increase in the apparent frequency is

1. 20%
2. 5%
3. 0.5%
4. 0%

110. A ray of unpolarised light is incident on a glass plate at the polarising angle 57°, then

1. The reflected ray and the transmitted ray both will be completely polarised
2. The reflected ray will be completely polarised and the transmitted ray will be partially polarised
3. The reflected ray will be partially polarised and the transmitted ray will be completely polarised
4. The reflected and transmitted both rays will be partially polarised

111. In a hydrogen atom, if energy of electron in ground state is –13.6ev, then that in the second excited state is;

(energy of electron is given by $-13.6\left(\frac{Z^2}{n^2}\right)\text{eV}$)

1. –1.51eV
2. –3.4eV
3. –6.04eV
4. –13.6eV

112. The de Broglie wave length of a tennis ball of mass 60 grams moving with a velocity of 10 m/s is approximately;
($h = 6.63 \times 10^{-34}$ Js)

1. 10^{-16} m
2. 10^{-25} m
3. 10^{-33} m
4. 10^{-31} m

113. The correct set of four quantum numbers for the valence electrons of rubidium atom (Z = 37) is

1. 5, 0, 0, + ½
2. 5, 1, 0, + ½
3. 5, 1, 1, + ½
4. 5, 0, 1 + ½

114. One of the following species exhibits diamagnetic behaviour

1. O_2^{2-}
2. O_2^{+}
3. O_2
4. NO

115. The hybridization of orbitals of N atom in NO_3^-, NO_2^+ and NH_4^+ ion are respectively

1. sp, sp^2, sp^3
2. sp^2, sp, sp^3
3. sp, sp^3, sp^2
4. sp^2, sp^3, sp

116. One of the following has a maximum number of lone pairs associated with Xe

1. XeO_3
2. XeF_4
3. XeF_6
4. XeF_2

117. The ionic radii in (Å) of N^{3-}, O^{2-} and F^- are respectively

1. 1.36, 1.40 and 1.71
2. 1.36, 1.71 and 1.40
3. 1.71, 1.40 and 1.36
4. 1.71, 1.36 and 1.40

118. A reduction in atomic size with increase in atomic number is a characteristic of elements of

1. f-block
2. Radioactive series
3. High atomic mass
4. d-block

119. The radius of La^{3+} (atomic number = 57) is 1.06Å. The radius of Lu^{3+} (atomic number 71) may be

1. 1.06Å
2. 0.85Å
3. 1.60Å
4. 1.40Å

120. For gaseous state if most probable velocity is denoted u_{mp}, average velocity by u_{av} and root means square velocity by u_{rms} then for a large number of molecules the ratio of these velocities are

1. $u_{mp} : u_{av} : u_{rms} = 1.225 : 1.128 : 1$
2. $u_{mp} : u_{av} : u_{rms} = 1.128 : 1.225 : 1$
3. $u_{mp} : u_{av} : u_{rms} = 1 : 1.128 : 1.225$
4. $u_{mp} : u_{av} : u_{rms} = 1 : 1.225 : 1.128$

121. Kinetic theory of gases proves

1. only Boyle's law
2. only Charles's law
3. only Avogadro's law
4. Boyle's, Charles's and Avogadro's laws

122. A bottle of dry ammonia and a bottle of dry hydrogen chloride connected through a long tube are opened simultaneously at both ends the white ammonium chloride ring first formed will be

1. at the centre of the tube
2. near the hydrogen chloride bottle
3. near the ammonia bottle
4. throughout the length of the tube

123. The correct relationship between free energy change in a reaction and the corresponding equilibrium constant K_c is:

1. $\Delta_r G^{\ominus} = RT \ln K_c$
2. $\Delta_r G^{\ominus} = -RT \ln K_c$
3. $\Delta G = RT \ln K_c$
4. $\Delta G = -RT \ln K_c$

124. For the reaction $SO_{2(g)} + 1/2\ O_{2(g)} \rightleftharpoons SO_{3(g)}$

If $K_p = K_c (RT)^{\Delta n}$ then, the value of Δn is

1. -1
2. $-1/2$
3. $1/2$
4. 1

125. Phosphorus Pentachloride dissociates as follows, in a closed reaction vessel,

$$PCl_{5(g)} \rightleftharpoons PCl_{3(g)} + Cl_{2(g)}$$

If total pressure at equilibrium of the reaction mixture is 'P' and degree of dissociation of PCl_5 is x, the partial pressure of PCl_3 will be

1. $\left(\frac{x}{1-x}\right)P$
2. $\left(\frac{x}{x+1}\right)P$
3. $\left(\frac{2x}{1-x}\right)P$
4. $\left(\frac{x}{x-1}\right)P$

126. Solid Ba $(NO_3)_2$ is gradually dissolved in a 1.0×10^{-4} M Na_2CO_3 solution. A precipitate of $BaCO_3$ will form at one of the following concentrations of Ba^{2+} : (K_{sp} for $BaCO_3 = 5.1 \times 10^{-9}$)

1. 4.1×10^{-5} M
2. 5.1×10^{-5} M
3. 8.1×10^{-8} M
4. 8.1×10^{-7} M

127. Three reactions involving $H_2PO_4^-$ are given below

I $H_3PO_4 + H_2O \rightarrow H_3O^+ + H_2PO_4^-$

II $H_2PO_4^- + H_2O \rightarrow H_3O^+ + HPO_4^{2-}$

III $H_2PO_4^- + OH^- \rightarrow H_3PO_4 + O^{2-}$

In the above reaction $H_2PO_4^-$ act as an acid and that is/are

1. II only
2. I and II
3. III only
4. I only

128. Percentage of free space in cubic close packed structure and in body centred structure are respectively

1. 48% and 26%
2. 30% and 26%
3. 26% and 32%
4. 32% and 48%

129. If α is the degree of dissociation of Na_2SO_4 the van't Hoff factor (i) used for calculating molecular mass is

1. $1 + \alpha$
2. $1 - \alpha$
3. $1 + 2\alpha$
4. $1 - 2\alpha$

130. One of the following aqueous solution exhibits highest boiling point

1. 0.015 M glucose
2. 0.01 M KNO_3
3. 0.015 M urea
4. 0.01 M Na_2SO_4

131. Consider the following reaction.

$$x\,MnO_4^- + y\,C_2O_4^{2-} + ZH^+ \rightarrow x\,Mn^{2+} + 2y\,CO_2 + \frac{Z}{2}H_2O$$

The values of *x*, *y* and *z* in the reaction are respectively

1. 5, 2 and 16
2. 2, 5 and 8
3. 2, 5 and 16
4. 5, 2 and 8

132. In $S_4O_6^{2-}$ (tetrathionate) ion

1. all sulphur atoms have oxidation state of + 2.5
2. two sulphur atoms have + 4 oxidation state and two have + 1 oxidation state
3. two sulphur atoms have + 3 oxidation state and two have + 2 oxidation state
4. two sulphur atoms have + 5 oxidation state and two have zero oxidation state

133. Two faraday of electricity is passed through a solution of $CuSO_4$. The mass of copper deposited at the cathode is:
(at.mass of Cu=63.5 amu)

1. Og
2. 63.5g
3. 2g
4. 127g

134. Given, $E^{o}_{Cr^{3+}/Cr} = -0.74V$; $E^{o}\ MnO_4^- / Mn^{2+} = 1.51V$

$E^{o}\ Cr_2O_7^{2-}/Cr^{3+} = 1.33\,V$ $E^{o}\ Cl/Cl^- = 1.36V$

the strongest oxidising agent will be

1. Cl
2. Cr^{3+}
3. Mn^{2+}
4. MnO_4^-

135. For a reaction $A + 2B \rightarrow C$, rate is given by $R = K\,[A]\,[B]^2$. The order of reaction is

1. 3
2. 6
3. 5
4. 7

136. Calamine is an ore of

1. Zn
2. Cu
3. Al
4. Fe

137. In the reaction, $2FeSO_4 + H_2SO_4 + H_2O_2 \rightarrow Fe_2(SO_4)_3 + 2H_2O$ the oxidizing agent is

1. $FeSO_4$
2. H_2SO_4
3. H_2O_2
4. both H_2SO_4 and H_2O_2

138. One of the following alkaline earth metal sulphates has its hydration enthalpy greater than its lattice enthalpy

1. $CaSO_4$
2. $BeSO_4$
3. $BaSO_4$
4. $SrSO_4$

139. Highly pure dilute solution of sodium in liquid ammonia

1. shows blue colour
2. does not exhibit electrical conductivity
3. produces sodium amide quickly
4. produces hydrogen gas quickly

140. Aluminium chloride in acidified aqueous solution forms

1. $Al_2O_3 + 6\ HCl$
2. $[Al\ (H_2O)_6]^{3+} + 3Cl^-$
3. $[Al\ (OH)_6]^{3-} + 3\ HCl$
4. $Al^{3+} + 3Cl^-$

141. One of the following compounds is not an antacid

1. Aluminium hydroxide
2. Cimetidine
3. Phenelzine
4. Ranitidine

142. One of the following antibiotics is used to cure typhoid

1. Pencillin
2. Chloramphenicol
3. Tetracycline
4. Streptomycin

143. Pernicious anemia is caused by the deficiency of vitamin

1. B_1
2. B_2
3. B_6
4. B_{12}

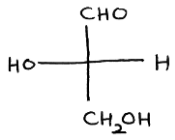
144. The linkage present in polysaccharide is

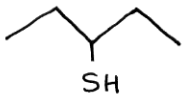
1. glycosidic
2. anomeric
3. epimeric
4. polymorphic

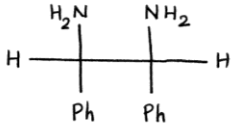
145. The IUPAC name of $CH_3COCH\ (CH_3)_2$ is

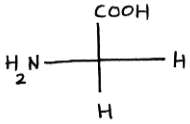
1. 4-methyl isopropyl ketone
2. 3-methyl-2-butanone
3. isopropyl methyl ketone
4. 2-methyl-3-butanone

146. One of the following molecules is expected to rotate plane polarized light

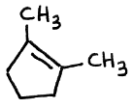
1. 

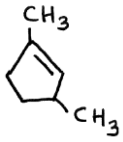
2. 

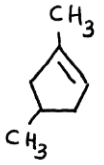
3. 

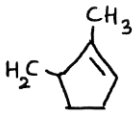
4. 

147. One compound would give 5-keto-2-methyl hexanal upon ozomolysis

1. 

2. 

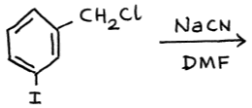
3. 

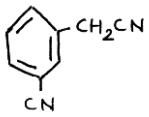
4. 

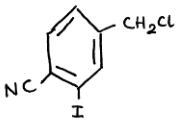
148. Elimination of HBr from 2-bromobutane results in the formation of

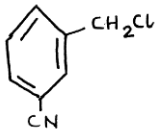
1. Equimolar mixture of 1- and 2-butene
2. Predominantly 2-butene
3. Predominantly 1-butene
4. Predominantly 2-butyne

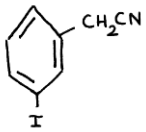
149. The structure of the major product formed in the following reaction is



1. 

2. 

3. 

4. 

150. One of the following products cannot be formed under any conditions from the reaction

$$C_2H_5OH + H_2SO_4 \rightarrow \text{Product}$$

1. Ethyl hydrogen sulphate
2. Ethylene
3. Acetylene
4. Diethyl ether

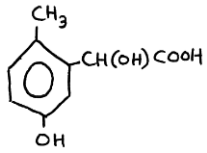
151. Phenol first reacts with concentrated H_2SO_4 and then with concentrated HNO_3 to give

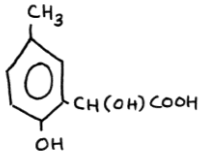
1. 2, 4, 6-trimitrobenzene
2. picric acid
3. p-nitro phenol
4. Nitrobenzene

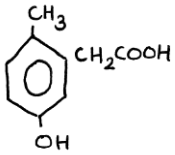
152. $CH_3CH_2COOH \xrightarrow[Red\,P]{Cl_2} (A) \xrightarrow{alc\,KOH} (B)$. (B) is

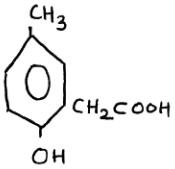
1. CH_3CH_2COCl
2. CH_3CH_2CHO
3. $CH_2=CHCOOH$
4. $ClCHCH_2COOH$

153. P-Cresol reacts with chloroform in alkaline medium to give compound (A), which adds HCN to form (B). The later on acid hydrolysis given Chiral Carboxylic Acid. The structure of carboxylic acid is

1. 

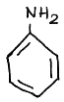
2. 

3. 

4. 

154. One of the following has the smallest Pk_b value

1. $(CH_3)_2NH$
2. CH_3NH_2
3. $(CH_3)_3\ N$
4. $C_6H_5NH_2$

155. In the chemical reaction  $\xrightarrow[HCl\ 278K]{NaNO_2}$ A $\xrightarrow[\Delta]{CnCN}$ B

Compounds A and B respectively are

1. Fluorobenzene and Phenol
2. Benzene diazonium chloride and benzonitrite
3. Nitrobenzene and chlorobenzene
4. Phenol and bromobenzene

156. Presence of a nitro group in a benzene ring

1. Activates the ring towards electrophilic substitution
2. Renders the ring basic
3. Deactivates the ring towards nucleophilic substitution
4. Deactivation the ring towards electrophilic substitution

157. A thermoplastic among the following is

1. bakelete
2. polystyrene
3. terylene
4. urea formaldehyde resin

158. One of the following is not a condensation polymer

1. Nylon 6, 6
2. Nylon 6
3. Dacron
4. Buna-S

159. One of the following is a biodegrable polymer

1. Polythene
2. PVC
3. Bakelite
4. PHBV

160. The monomer used to produce orlon is

1. $CH_2 = CHCN$
2. $CH_2 = CCl_2$
3. $CH_2 = CHCl$
4. $CH_2 = CHF$

METHODOLOGY

161. Science does this

1. Science draws conclusions about supernatural explanations
2. Science makes aesthetic judgements
3. Science makes moral judgements
4. Science predicts on phenomena in nature

162. This is an example of scientific fact

1. We can produce a laser light a million times brighter than sunshine
2. Last year there was a horrible outbreak of Dengue in AP
3. Cell phones should be banned in all public school classrooms.
4. The capital of Andhra Pradesh is Amaravathi

163. The skill a student exhibits when he/she transmits and receive information by using tables, charts, graphs, drawings or words is

1. Makes interpretation
2. Draws inferences
3. Communicates
4. Makes observations

164. The following is an example of a quantitative observation

1. The mass of the object is 5 grams.
2. The leaves are waxy and smooth.
3. I would like to have 2 pens.
4. Hydrogen Sulphide had bad odour.

165. This is an example of science being performed.

1. Playing on the computer.
2. Testing which compound is most reactive.
3. Enjoying the chirping of birds
4. Sketching a picture of the night sky

166. Of the four parts Bhaskara's work Siddhanta Shiromani the one that deals with the mathematics of spheres.

1. Leelavati.
2. Bijaganita
3. Grahaganita.
4. Goladhyaya

167. The field with which S. Chandrasekhar is associated with is

1. Fluid Mechanics
2. Cosmology
3. Electronics
4. Optics

168. Copernicus believed that the centre of universe is the

1. Sun
2. Moon
3. Earth
4. Star

169. Raman effect deals with

1. Reflection of light
2. Scattering of light
3. Diffraction of light
4. Interference of light

170. The students of a class make it a point to switch off lights and fans when leaving a classroom as a result of the class on conservation of energy class indicates

1. Cultural value
2. Moral value
3. Vocational value
4. Aesthetic value

171. According to NCF (2005) the validity requires that the curriculum must convey significant and correct scientific information is

1. Content validity
2. Historical validity
3. Cognitive validity
4. Ethical Validity

172. Study of life process such as digestion or respiration or cell division involves correlation of

1. Physical sciences and Language
2. Physical sciences and Biology
3. Physical sciences and Environment
4. Physical sciences and Geology

173. The difference between an aim and an objective is

1. aims are broad, objectives are narrow
2. aims are specific, objectives are general
3. aims are short-term, objectives are long-term
4. aims are measurable, objectives are not

174. This is not an aim of teaching science

1. To make students get interested in Science
2. To develop in students a scientific culture
3. To enable students to interpret a graph
4. To provide training to students in scientific method

175. Objective related to affective domain is

1. Student can arrange the experimental set up for finding focal length of a convex lens
2. Student can draw a ray diagram for virtual image formation through a concave mirror
3. Student records his experimental values honestly
4. Student can explain the use of convex lens in a microscope

176. The correct order of Dave's taxonomy of Psychomotor domain is

1. Naturalisation, Precision, Articulation, Manipulation, Imitation
2. Articulation, Imitation, Manipulation, Naturalisation, Precision
3. Imitation, Manipulation, Precision, Articulation, Naturalisation
4. Manipulation, Precision, Imitation, Naturalisation, Articulation

177. The set of action words which students display when they try to evaluate information is

1. Solve, Utilise
2. Define, Label
3. Justify, Criticise
4. Classify, Compare

178. The Components of the Questioning skill are

1. Prompting and redirecting
2. Teacher movement and gestures
3. Use of link words and planned repetition
4. Making links with previous knowledge and motivation

179. This is not true about project method

1. It is a purposeful activity
2. It is proceeded in social environment
3. It is accomplished in real life
4. It is teacher centred activity

180. The statement which describes deductive approach

1. It starts with examples and ends in formulae /rules / concept.
2. It encourages actual observation particular instances and thinking
3. It starts with formulae / rules / concepts etc and ends in solution of the problem.
4. The method is more suitable for lower classes of primary education

181. The statement “In Heuristic methods of teaching, the students are placed in the position of a discoverer” is propounded by

1. John Dewey
2. Risk .T.M
3. Armstrong
4. Kilpatrick

182. The Computer Aided Instructional Material which can be used to learn new concepts is

1. Drill and Practice
2. Modelling
3. Tutorial
4. Gaming

183. This lesson planning step is important where some definition or some generalization is to be induced from the students.

1. Presentation
2. Comparison or Association
3. Generalization
4. Recapitulation

184. This is a characteristic of a unit plan

1. Elaborates basically on how teaching is planned in a way to achieve the planned objectives
2. It may also include personal aims that focus on personal development of the teacher.
3. It includes the outline of the content intended to be covered and cross-curricular references, etc.
4. Is basically a teacher’s plan for teaching an individual lesson.

185. The pair of teaching aids that have highest degree of abstraction are

1. books, programmed instruction
2. exhibition, museums
3. video , television
4. models, objects

186. The experience a student gets when a science teacher explains working of motor using a working model is

1. Visual
2. Dramatisation
3. Direct Purposeful
4. Contrived experience

187. This aid is classified as audio aid

1. Film Projector
2. Tape recorder
3. Slide projector
4. Television

188. The Hardware which uses a transparency as a software is

1. LCD Projector
2. Slide Projector
3. Over Head Projector
4. Film Projector

189. This is the correct procedure to follow when smelling the odor of a chemical substance

1. Fan your hand over the substance toward your nose which should be directly over the beaker.
2. Place your nose directly over the substance and take a big breathe in.
3. Fan your hand over the substance toward your nose which should be several centimeters away from the substance.
4. Place your nose near the opening of the beaker and inhale.

190. In order to verify Ohm's law the apparatus the teacher would arrange would include the following in it

1. Kipp's apparatus, delivery tube and gas jars, tough
2. Over flow can, Spring balance , and Graduated beaker
3. Ammeter, Voltmeter, Rheostat, tap key and connecting wires
4. Calorimeter, steam generator, retort stand, heat source, thermometer

191. This is the most suitable strategy for development of manipulative skills in students

1. Visit to a Science exhibition
2. Participating in a Science quiz
3. Testing the properties of Hydrogen in the lab
4. Participating in Science Olympiad

192. The curriculum in which subject matter is transacted in terms of activities and knowledge is gained as an outcome and product of those activities

1. Child centered curriculum
2. Activity centered curriculum
3. Experience centered curriculum
4. Subject centered curriculum

193. This is not amongst Vogel's criteria of selection of a textbook

1. Qualification of author
2. Cost of book
3. Content
4. Appearance

194. The inclusion of topics like LASERS, Electronics and Polymers only in 10^{th} class Physical science is this type of curriculum organisation

1. Logical
2. Topical
3. Concentric
4. Spiral

195. It is important to organise science fairs because it

1. Helps teachers in getting their promotion
2. Give financial benefits to organisers
3. Helps nurture scientific talent in students
4. Helps students to enjoy and while away their time

196. The validity requires that the curriculum engage the learner in acquiring the methods and processes of science is

1. Content validity
2. Historical Validity
3. Ethical Validity
4. Process validity

197. A test that measures what it claims to measure is

1. Reliable
2. Objective
3. Valid
4. Economic

198. Evaluation that monitors learning progress is

1. Placement evaluation
2. Formative evaluation
3. Diagnostic evaluation
4. Summative evaluation

199. This is a closed ended question

1. What are your assumptions in making this conclusion?
2. What is Newton's third law of motion?
3. What else might have caused the fall in temperature?
4. What do you think could be an alternative explanation?

200. This is the best method to evaluate experimentation skills of high school science students

1. Checklist
2. Concept map
3. Achievement test
4. Practical record