SR. SCIENTIFIC ASSISTANT (CHEMISTRY)-2023

YEAR OF ADVT: 2019 DATE OF EXAM: 04-MAR-2023

DO NOT BREAK THE SEAL OF THE BOOKLET UNTIL YOU ARE TOLD TO DO SO

QUESTION BOOKLET

SERIES III

Subjects : General English, General Knowledge, Chemistry

BOOKLET SERIAL NO. 4119

Marks : 300

Time : $2^{1}/_{2}$ hours

Read the following instructions carefully before you begin to answer the questions.

INSTRUCTIONS TO CANDIDATES

1. This booklet contains **150 questions** to be answered in a separate OMR Answer Sheet using Black Ball Pen in following three parts:

   Part-A-General English : 25 questions, Part-B-General Knowledge : 25 questions,

   Part-C-Chemistry : 100 questions

2. All Questions are compulsory.
3. You will be supplied the Answer sheet separately by the invigilator. You must complete the details of particulars asked for.
4. Answers must be shown by completely blackening the corresponding circles in the Answer Sheet against the relevant question number by Black Ball Pen. OMR Answer Sheet without marking series/ double series marking shall not be evaluated.

Example :

Supposing the following question is asked :-

The Capital of Meghalaya is-

A. Guwahati
B. Kohima
C. Shillong
D. Delhi

You will have four alternatives in the Answer Sheet for your response corresponding to each question of the Question Booklet as below :-

Ⓐ Ⓑ Ⓒ Ⓓ

In the above illustration, if your chosen response is alternative C i.e. Shillong, then the same should be marked on the Answer Sheet by blackening the relevant circle with a Black Ball Point Pen only as below :-

Ⓐ Ⓑ ● Ⓓ

WHICH IS THE ONLY CORRECT METHOD OF ANSWERING

5. Answer the questions as quickly and as carefully as you can. Some questions may be difficult and others easy. Do not spend too much time on any one question.
6. There will NOT be any negative marking for wrong answers.
7. The Answer Sheet must be handed over to the invigilator before you leave the Examination Hall.
8. No rough work is to be done on the Answer Sheet. Space for rough work has been provided in the question booklet.

PART - A - GENERAL ENGLISH

Marks :50

Each question carries 2 marks :

Section-I

Directions : Choose the correct meaning for the words and phrases given below :

1. Anything which cannot be seen is
a) Visible b) Invincible
c) Invisible d) Inaudible

2. That which cannot be corrected is
a) Unchangeable b) Uncorrectable
c) Incorrect d) Incorrigible

3. Oligarchy means
a) Government by a king
b) Government by a few
c) Government by the people
d) Government by a tyrant

4. A misanthropist is
a) A person who studies mankind
b) A person who loves mankind
c) A person who hates mankind
d) A person who believes in mankind

5. The study of the heavenly bodies is called
a) Astrology b) Astrophysics
c) Astronomy d) Astronomer

6. "Enmity" also means
a) Love b) Friendship
c) Hostility d) Generosity

7. A group of bees is also called
a) A flight of bees b) A shower of bees
c) A swarm of bees d) A grove of bees

8. Another word for "anger" is
a) Gallant b) Hate
c) Wrath d) Polite

9. Choose the correct comparison
a) As bright as day b) As light as day
c) As happy as day d) As shiny as day

10. Choose the correct comparison
a) As noisy as lightning
b) As loud as lightning
c) As quick as lightning
d) As white as lightning

Section-II

Directions : Read the following passage and answer the questions below.

Plastic has been used by us for a long time as a major substitute for other materials. It is made mainly from petroleum and natural gas. It can affect the environment enormously, favourably and unfavourably. The favourable effects can be stated first. They are : (i) plastic requires much less energy to produce than other materials; (ii) there is less smoke and soot in its manufacture; (iii) other materials like wood also create toxic gases when burned, and non-plastics may catch or start fires more readily. It also has effects which are unfavourable to the environment. These are : (i) the ingredients used in manufacturing plastic are dangerous; (ii) common types of plastic produce toxic gases in fires; (iii) carbon-reinforced plastics can cause short circuits when burned; (iv) plastics are not biodegradable or recyclable. Thus they add to the earth's already enormous litter problem, but attempts are being made to make recycling of plastics easier. It is felt that, whether we like it or not, the use of plastic in the future is likely to increase greatly. In fact, we may even make houses and bridges out of plastic.

Choose the appropriate antonyms of the following :

11. Requires
a) Essential b) Unnecessary
c) Imperative d) Compulsory

12. Create
a) Make b) Build
c) Dismantle d) Construct

13. Dangerous
a) Risky b) Unsafe

c) Harmless d) Hazardous

14. Produce
a) Generate b) Control
c) Cause d) Create

15. Enormous
a) Massive b) Gigantic
c) Little d) Huge

Section-III

Directions : Fill in the blanks from the four alternatives given below :

16. I caught him by ____ left arm.
a) A b) An
c) The d) Zero article

17. Babar ____ Brave defeated Rana Sanga.
a) The b) A
c) An d) Zero article

18. They are very proud ____ their success.
a) At b) About
c) Of d) Through

19. We are sorry ____ your mother's illness.
a) For b) At
c) About d) Because

20. Everest is the ____ mountain in the world.
a) Most high b) Highest
c) High d) More high

21. Her dress is ____ than mine.
a) More clean b) Cleaner
c) Cleanest d) Most clean

22. Susan works very ____.
a) Harder b) Hardest
c) Hardly d) Hard

23. ____ soldier has a gun in his hand.
a) All b) Every
c) Each d) Some

24. Neither the father nor the sons ____ going to prepare dinner tonight.
a) Is b) Are
c) Will be d) Were

25. Not only the teacher but the students ____ also there.
a) Was b) Is
c) Were d) Will be

PART - B -GENERAL KNOWLEDGE

Marks : 50

Each question carries 2 marks :

26. Which of the amendments of the following Constitution was responsible for deleting the right to property from the list of fundamental rights ?
a) 43rd amendment b) 44th amendment
c) 48th amendment d) 52nd amendment

27. What is the Literacy Rate of India in 2022 according to the report published by the National Survey of India ?
a) 61.34% b) 63.98%
c) 77.7% d) 65.38%

28. ASEAN is headquartered at-
a) Jakarta b) Kathmandu
c) Kuala Lumpur d) Delhi

29. What is the main festival of Telangana ?
a) Durga puja b) Pongal
c) Bathukamma d) Yaoshang

30. Which of the following unmanned space-craft sent by NASA to study the planet Jupiter and its moon ?
a) Galileo b) Suisei (Planet-A)
c) Cassini-Huygens d) Ranger 7

31. Who is known as the Father of Economics?
a) J.M. Keynes b) Adam Smith
c) Abraham Maslow d) J.K. Galbraith

32. The agency of the United Nations that was set up to strengthen international cooperation in the field of education and improve the standards of education is
a) UNEP b) UNCTAD
c) UNESCO d) UNDP

33. Jana Gana Mana, was accepted as the National Anthem of India by the Constituent Assembly of India in which of the following years?
a) 1950 b) 1949
c) 1948 d) 1947

34. In which year did the Indian Cricket Team win the Second World Cup ?
a) 2011 b) 2012
c) 2013 d) 2010

35. When was Pradhan Mantri Awas Yojana (Urban)-PMAY (U) launched in India ?
a) April 25, 2018 b) June 25, 2015
c) November 20, 2016 d) April 21, 2017

36. The man who invented the cash machine or the ATM is
a) John Roberts
b) Michael Faraday
c) Alexander Graham Bell
d) John Shepherd-Barron

37. Which is the Largest National Park of India?
a) Kaziranga National Park
b) Balphakram National Park
c) Hemis National Park, Ladakh
d) Rajiv Gandhi (Rameswaram) National Park

38. Where is the largest Nuclear Power Plant in India ?
a) Maharashtra b) Gujarat
c) Tamil Nadu d) Karnataka

39. When the rate of unemployment increases because of recession or depression. It is which type of unemployment ?
a) Cyclical unemployment
b) Structural unemployment
c) Seasonal unemployment
d) Frictional unemployment

40. Which state is the top sugar producer of India in 2021-22 ?
a) Madhya Pradesh b) Maharashtra
c) Gujarat d) Karnataka

41. As per the recent NSO Update (June 2022), what is the GDP growth estimate of India in 2021-22 ?
a) 8.5 percent b) 8.7 percent
c) 8.9 percent d) 9.2 percent

42. What is the name of the campaign launched to ensure complete Covid-19 vaccination (in June 2022) ?
a) Har Ghar Dastak Campaign 2.0

b) Atmanirbhar Vaccine Campaign 2.0
c) Pradhan Mantri Vaccine Campaign
d) Garib Kalyan Vaccine Campaign 2.0

43. Who is the first-ever Indian brand ambassador of luxury brand Louis Vuitton ?
a) Deepika Padukone b) Anushka Sharma
c) Mary Kom d) Aishwarya Rai

44. Who is the present Secretary-General of NATO ?
a) Joe Biden b) Angela Merkel
c) Emmanuel Macron d) Jens Stoltenberg

45. When was the movement 'Make in India', launched ?
a) 26 January 2000 b) 25 September 2014
c) 15 August 2018 d) 2 October 2020

46. India's first liquid-mirror telescope has been commissioned in which state/UT ?
a) Sikkim b) Jammu and Kashmir
c) Uttarakhand d) Himachal Pradesh

47. What is the theme of the 'World Environment Day 2022' ?
a) Invest in our planet
b) Only one Earth
c) 50th Environment Day
d) Live with the Nature

48. Who is the winner of the French Open 2022 Men's single title ?
a) Novak Djokovic b) Rafael Nadal
c) Casper Ruud d) Lucas Alcaraz

49. Who was the pioneer of the Cherry blossom festival in Shillong and was conferred with this year 'Green Globe Award 2022' for his contributions in the field of biodiversity, conservation and Himalayan ecosystem ?
a) Conrad Sangma b) Silverine Swer
c) Dinabandhu Sahoo d) Mukul Sangma

50. According to the Constitution of India, which of the following is NOT one of the main organs of the Government ?
a) Legislature b) Bureaucracy
c) Executive d) Judiciary

PART - C -CHEMISTRY

Marks :200

Each question carries 2 marks :

51. Schottky defect in crystals is observed when
a) Unequal number of cations and anions are missing from the lattice
b) Equal number of cations and anions are missing from the lattice
c) An ion leaves its normal site and occupies an interstitial site
d) Density of the crystal increased

52. A semiconductor of Germanium can be made p-type by adding impurity of
a) Trivalent element
b) Tetravalent element
c) Pentavalent element
d) Hexavalent element

53. The law stating that "the relative lowering of vapour pressure is equal to the mole fraction of a solute in the solution" is known as
a) Henry's law
b) Van't Hoff's law
c) Rault's law
d) Ostwald's dilution law

54. An aqueous solution of 6.3g of oxalic acid dihydrate is made up to 250 ml. The volume of 0.1 N NaOH required to completely neutralize 10 ml of this solution is
a) 40 ml b) 20 ml
c) 10 ml d) 4 ml

55. Increase in temperature of aqueous solution will cause
a) Decrease in molality
b) Decrease in molarity
c) Decrease in mole fraction
d) Decrease in % w/w

56. Camphor is often used in molecular mass determination because
a) It is readily available
b) It has a very high cryoscopic constant
c) It is having high ebullioscopic constant
d) It is volatile

57. The shape of PCl_5 molecule is
a) Regular pentagonal
b) Tetrahedral
c) Trigonal bipyramidal
d) Octahedral

58. Which one of the following molecules has sp^2 hybridization ?
a) CO_2 b) SO_2
c) N_2O d) CO

59. The common features among the species CN^-, CO and NO^+ are
a) Bond order 3 and isoelectronic
b) Bond order 3 and weak field ligand
c) Bond order 2 and π -acceptor
d) Isoelectronic and weak field ligand

60. The maximum number of electrons in a subshell with l = 2 and n = 3 is
a) 2 b) 6
c) 10 d) 12

61. In a face-centered cubic lattice, unit cell is shared equally by how many unit cells ?
a) 2 b) 4
c) 6 d) 8

62. In naturally occurring changes, a system tends to alter in such a way that the entropy of the system
a) Decreases b) Increases
c) Remains constant d) Is reduced to zero

63. The standard molar enthalpy of formation of CO_2 is equal to
a) Zero
b) The standard molar enthalpy of combustion of gaseous carbon
c) The sum of the standard molar enthalpies of formation of CO and O_2
d) The standard molar enthalpy of combustion of carbon (graphite)

64. The work done during the expansion of a gas from 4 dm^3 to 6 dm^3 against a constant external pressure of 3 atm. is (1L atm. = 101.32 J)
a) -600 J b) -608 J
c) +304 J d) -304 J

65. The standard molar heat of formation of

ethane, CO_2 and water(l) are respectively -21.0, -94.1 and -68.3 kcal. The standard molar heat of combustion of ethane will be

a) -372 kcal b) -162 kcal
c) -340 kcal d) +183.5 kcal

66. Which of the following is not a state function ?

a) ΔG b) ΔE
c) ΔH d) W

67. The conductivity of a standard solution of $BaSO_4$ is $3,06 \times 10^{-6}$ ohm^{-1} cm^{-1} and its equivalent conductance is 1.53 ohm^{-1} $cm^2 equiv^{-1}$. The K_{sp} for $BaSO_4$ will be

a) 3.0×10^{-12} b) 2.5×10^{-9}
c) 2.5×10^{-12} d) 4.0×10^{-12}

68. The ionic conductance of Ba^{+2} and Cl^{-1} are respectively 127 ohm^{-1} cm^2 and 76 ohm^{-1} cm^2 at infinite dilution. The equivalent conductance (in ohm^{-1} cm^2) of $BaCl_2$ at infinite dilution will be

a) 203 b) 279
c) 101.5 d) 139.5

69. Effect of dilution on conduction

a) Specific conductance increases, molar conductance decreases
b) Specific conductance decreases, molar conductance increases
c) Both increase with dilution
d) Both decrease with dilution

70. If three Faradays of electricity is passed through the aqueous solutions of $AgNO_3$, $CuSO_4$ and $AuCl_3$, the molar ratio of the cations deposited at the cathode will be

a) 1 : 1: 1 b) 1 : 2: 3
c) 3 : 2: 1 d) 6 : 3: 2

71. The role of catalyst in a chemical reaction is to change

a) Heat of reaction
b) Products of reaction
c) Activation energy
d) Equilibrium constant

72. 75% of the first order reaction was completed in 32 minutes. What will be the time required for 50% completion of the reaction ?

a) 24 minutes b) 8 minutes
c) 16 minutes d) 4 minutes

73. Unit of rate constant for zero order reaction is

a) Mole $L^{-1}s^{-1}$ b) $Mole^{-1}$ Ls^{-1}
c) s^{-1} d) $Mole^{-2}L^2s^{-1}$

74. Which of the following explains the fact that the reactions of high molecularity are rare ?

a) More the number of colliding particles more is their weight and difficult it becomes to cross the barrier.
b) The activation energy for many-body collisions becomes very large
c) Many-body collisions with proper orientation have low probability
d) Many-body collisions are not energetically favoured

75. The rate constant of the reaction at temperature 200K is 10 times less than the rate constant at 400K. What is the activation energy of the reaction ?

a) 1842.4 R b) 921.2 R
c) 460.6 R d) 230.3 R

76. Which one of the following is not a lyophilic colloid ?

a) Milk b) Gum
c) Fog d) Blood

77. Alums purify muddy water by

a) Dialysis b) Adsorption
c) Coagulation d) Diffusion

78. Soap removes greas by

a) Absorption b) Emulsification
c) Coagulation d) Filtration

79. Movement of dispersion medium under the influence of electric field is

a) Electrodialysis b) Electrophoresis
c) Electro-osmosis d) Cataphoresis

80. In coagulating the colloidal solution of As_2S_3, which has the minimum coagulating value ?

a) NaCl b) KCl
c) $BaCl_2$ d) $AlCl_3$

81. Which of the following shows only negative oxidation state ?

a) Fluorine b) Chlorine

c) Bromine d) Iodine

82. The type of hybridization of boron in diborane is
a) sp b) sp^2
c) sp^3 d) sp^3d^2

83. Among the following, the electron deficient compound is
a) CCl_4 b) PCl_5
c) $BeCl_2$ d) BCl_3

84. Glass is a
a) Polymeric mixture
b) Micro-crystalline solid
c) Super-cooled liquid
d) Gel

85. Which of the following oxides is amphoteric in nature ?
a) CaO b) CO_2
c) SiO_2 d) SnO_2

86. White vitriol has the formula
a) $ZnSO_4$, $7H_2O$ b) $CuSO_4$, $5H_2O$
c) $FeSO_4$, $7H_2O$ d) $MgSO_4$, $7H_2O$

87. Which transition metal is used for the reduction of steam to hydrogen ?
a) Nickel b) Iron
c) Silver d) Platinum

88. Which of the following elements involves gradual filling of 5f-electrons ?
a) Lanthanides b) Actinides
c) Transition metals d) Coinage metals

89. Bell metal is an alloy of
a) Cu + Pb b) Cu + Sn
c) Cu + Zn d) Cu + Ni

90. The equivalent weight of $K_2Cr_2O_7$ in acid medium is equal to its
a) Molecular weight
b) $^1/_2$ Molecular weight
c) $^1/_3$ Molecular weight
d) $^1/_6$ Molecular weight

91. Potassium ferrocyanide is a
a) Normal salt b) Mixed salt
c) Double salt d) Complex salt

92. The IUPAC name of $[Ni(CO)_4]$
a) Tetracarbonylnickel (II)
b) Tetracarbonylnickel (0)
c) Tetracarbonylnickelate (II)
d) Tetracarbonylnicalate (0)

93. What is the oxidation state of chromium in $[Cr(NH_3)_6]Cl_3$?
a) +2 b) +3
c) +4 d) +6

94. Which one of the following ligands forms a chelate ?
a) Acetate b) Ammonia
c) Cyanide d) Oxalate

95. Which type of isomerism is shown by the complex compounds $[Co(NH_3)_5Br]SO_4$ and $[Co(NH_3)_5SO_4]Br$?
a) Ionic b) Linkage
c) Co-ordination d) Optical

96. In the nuclear reaction $^{92}U_{238} \rightarrow {}^{82}U_{206}$, the number of α-particles and β-particles emitted is
a) $7\alpha, 5\beta$ b) $6\alpha, 4\beta$
c) $4\alpha, 3\beta$ d) $8\alpha, 6\beta$

97. If the mass defect of $^9X_4$ is 0.090 amu, the binding energy per nucleon is (1amu = 931.5 Mev)
a) 9.315 MeV b) 931.5 MeV
c) 83.0 MeV d) 8.30 MeV

98. Optically active isomers which are not mirror images are called
a) Enantiomers b) Metamers
c) Tautomers d) Diastereomers

99. Isomers which can be inter-converted through rotation around a single bond are
a) Conformers b) Diastereomers
c) Enantiomers d) Position isomers

100. The (R) - and (S) - enantiomers of an optically active compound differ in
a) Their reactivity with achiral reagents
b) Their optical rotation of plane polarized light

c) Their melting point
d) Their solubility in achiral solvents

101. The boiling points of alcohols are much higher than the hydrocarbons of comparable molecular masses due to
a) Dipole - dipole interaction
b) Intermolecular hydrogen bonding
c) Intramolecular hydrogen bonding
d) Van der Waals forces of attraction

102. Which of the following enzymes converts glucose to ethyl alcohol ?
a) Diastase b) Invertase
c) Maltase d) Zymase

103. Which one of the following compounds will be more readily attacked by an electrophile ?
a) Chlorobenzene b) Benzene
c) Phenol d) Tolune

104. Wood spirit is known as
a) Methanol b) Ethanol
c) Acetone d) Benzene

105. Phenol is heated with phthalic anhydride in presence of conc. H_2SO_4. The product gives pink colour with alkali. The product is
a) Phenolphthalein b) Fluorescein
c) Salicylic acid d) Aspirin

106. Schiff's reagent is
a) Magenta solution decolourised with sulphurous acid
b) Magenta solution decolourised with chlorine
c) Ammoniacal cobalt chloride solution
d) Ammoniacal manganese sulphate solution

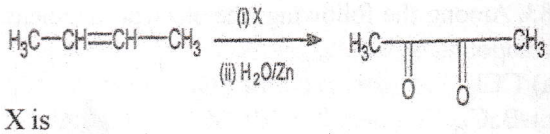
107. Benzene reacts with CH_3COCl in presence of anhydrous $AlCl_3$ to give
a) $C_6H_5CH_3$ b) C_6H_5Cl
c) $C_6H_5O_2Cl$ d) $C_6H_5COCH_3$

108. Acetone is mixed with bleaching powder to give
a) Chloroform b) Acetaldehyde
c) Ethanol d) Phosgene

109. Aldol condensation will not take place in
a) HCHO b) CH_3CHO
c) CH_3COCH_3 d) CH_3CH_2CHO

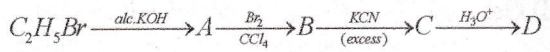
110. Rearrangement of an oxime to amide in presence of strong acid is called
a) Curtius rearrangement
b) Fries rearrangement
c) Beckmann rearrangement
d) Sandmeyer reaction

111. In the reaction



X is
a) HNO_3 b) O_2
c) O_3 d) $KMnO_4$

112. The acid D obtained through the following sequence of reactions is



a) Succinic acid b) Malonic acid
c) Maleic acid d) Oxalic acid

113. The molecular weight of benzoic acid in benzene as determined by depression in freezing point method corresponds to
a) Ionization of benzoic acid
b) Dimerization of benzoic acid
c) Trimerization of benzoic acid
d) Dissociation of benzoic acid

114. Among the following acids which has the lowest pK_a value ?
a) HCOOH b) CH_3COOH
c) $(CH_3)_2CHCOOH$ d) CH_3CH_2COOH

115. In the nitration of benzene with a mixture of concentrated nitric acid and concentrated sulphuric acid, the active species involved is
a) Nitrate ion b) Nitrite ion
c) Nitronium ion d) Nitric oxide

116. Which of the following amines gives carbylamines reaction ?
a) Aniline
b) N-Methylaniline
c) Dimethylamine
d) N,N-Dimethylaniline

117. When ethylamine is treated with CH_3MgBr, the product is
a) CH_3CH_3 b) CH_4
c) $CH_3CH_2CH_3$ d) $CH_3CH_2CH_2CH_3$

118. Cyanide ion is a/an
a) Zwitterion b) Ambident nucleophile
c) Cation d) Electrophile

119. When primary amines are treated with chloroform and potassium hydroxide in ethanol, the product obtained is
a) Cyanide b) Isocyanide
c) Secondary amine d) Nitro compound

120. An organic compound A on reduction gives compound B which on reaction with chloroform and potassium hydroxide forms C. The compound C on catalytic reduction gives N-methylaniline. The compound A is
a) Methylamine b) Aniline
c) Nitromethane d) Nitrobenzene

121. Reduction of benzenediazonium chloride with Zn/HCl gives
a) Aniline b) Phenylhydrazine
c) Azobanzene d) Hydrazobenzene

122. The indicator that is obtained by coupling the diazonium salt of sulphanilic acid with N, N-dimethyaniline is
a) Methyl red b) Methyl orange
c) Phenolphthalein d) Indigo

123. The monomer of polyvinyl chloride (PVC) is
a) Ethylene b) Vinyl chloride
c) Tetrafluoroethylene d) Styrene

124. Terylene is a condensation polymer of ethylene glycol and
a) Benzoic acid b) Phthalic acid
c) Salicylic acid d) Terephthalic acid

125. Which of the following is a biodegradable polymer ?
a) Cellulose b) Polythene
c) Polyvinyl chloride d) Nylon-6

126. The protein responsible for blood clotting is
a) Albumins b) Globulins
c) Fibroin d) Fibrinogen

127. Which of the following constitute the genetic material of the cell ?
a) Nucleic acids b) Proteins
c) Lipids d) Carbohydrates

128. Which of the following has Magnesium ?
a) Chlorophyll b) Heamoglobin
c) Haemocyanin d) Vitamin B_{12}

129. Which base is present in RNA but not in DNA ?
a) Thymine b) Cytosine
c) Guanine d) Uracil

130. The helical structure of protein is stabilized by
a) Dipeptide bonds b) Hydrogen bonds
c) Peptide bonds d) Glycosidic linkage

131. Which of the following is a natural dye ?
a) Phenolphthalein b) Martius yellow
c) Alizarin d) Malachite green

132. A broad spectrum antibiotic is
a) Paracetamol b) Penicillin
c) Aspirin d) Chloramphenicol

133. Barbituric acid is used as
a) An antipyretic b) An antiseptic
c) An analgesic d) A tranquilizer

134. Which of the following is used as a preservative to protect processed food ?
a) Sodium sulphate
b) Saccharin
c) Butylated Hydroxytoluene
d) Sodium metabisulphate

135. India's first satellite launch vehicle, SLV-3 used
a) Composite propellants
b) Liquid propellants
c) Bi-liquid propellants
d) Hybrid propellants

136. Which one of the following pairs of materials serves as electrodes in chargeable batteries commonly used in devices such as torchlight, electric shaver etc. ?
a) Nickel and Cadmium
b) Zinc and Carbon
c) Lead and Aluminium
d) Iron and Cadmium

137. 'Yellow cake', an item of smuggling across boarder is
a) A crude form of heroin
b) A crude form of cocaine

c) Uranium oxide
d) Unrefined gold

138. In an atom, the order of filling up of the orbitals is governed by
a) Aufbau principle
b) Heisenberg's uncertainty principle
c) Hund's rule of Maximum Spin Multiplicity
d) Pauli's exclusion principle

139. Regarding the atom of a chemical element, the magnetic quantum number refers to
a) Orientation of orbitals
b) Shape of orbitals
c) Size of orbitals
d) Spin of electrons in an orbital

140. Which of the following elements is alloyed with iron to produce steel which can resist high temperatures and also have high hardness and abrasion resistance ?
a) Aluminium b) Chromium
c) Nickel d) Tungsten

141. Which of the following metal does not form amalgam ?
a) Zinc b) Copper
c) Magnesium d) Iron

142. Salts of which of the following elements provide colours to the fireworks ?
a) Zinc and sulphur
b) Potassium and mercury
c) Strontium and barium
d) Chromium and nickel

143. Which of the following is called philosopher's wool ?
a) Zinc bromide b) Zinc nitrate
c) Zinc oxide d) Zinc chloride

144. What are Rubies and Sapphires chemically known as ?
a) Silicon dioxide b) Lead tetra-oxide
c) Boron nitride d) Aluminium oxide

145. Which one of this used as an explosive ?
a) Phosphorous trichloride
b) Mercuric oxide
c) Graphite
d) Nitroglycerine

146. The characteristic odour of garlic is due to
a) A chloro compound
b) A sulphur compound
c) A nitrogen compound
d) A carbon compound

147. Which of the following fuels causes minimum environmental pollution ?
a) Diesel b) Coal
c) Hydrogen d) Kerosene

148. The water pollution in river is measured by the dissolved amount of
a) Chlorine b) Ozone
c) Nitrogen d) Oxygen

149. Which one of the following polymers is widely used for making bullet proof material ?
a) Polyvinyl chloride b) Polyamides
c) Polyethylene d) Polycarbonates

150. Which one of the following is a mixed fertilizer ?
a) Urea b) NPK
c) CAN d) Ammonium sulphate

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