

**Gujarat Secondary & Higher Secondary Education Board,
Gandhinagar**



STD. 10

English Medium

Question Bank-2008

Subject : Science & Technology

Published by

Secretary

Gujarat Secondary & Higher Secondary Education Board,

Sector-10/B, Nr. Old Sachivalaya,

Gandhinagar-382043

SCIENCE & TECHNOLOGY

SECTION - A

Total Marks - 15

1) 1 Nanometer = _____ meter

(A) 10^6

(B) 10^{-9}

(C) 10^9

(D) 10^{-6}

2) 1 metre = _____ nanometer

(A) 10^6

(B) 10^{-9}

(C) 10^9

(D) 10^{-6}

3) 5×10^{12} nm = _____ m

(A) 5000

(B) 5×10^{11}

(C) 5×10^{18}

(D) 0.5

4) Which is the most important property of Nanomaterials?

(A) Pressure

(B) Force

(C) Temperature

(D) Friction

5) What is the diameter of Hydrogen atom?
~~molecule?~~

(A) 0.01 nm

(B) 0.1 nm

(C) 1.0 nm

(D) 0.5 nm

(6) What is the width of DNA ~~is it?~~ molecule?

(A) 2 nm

(B) 3 nm

(C) 4 nm

(D) 1 nm

(7) Thermal conductivity of carbon nanotubes is _____ times more than silver.

(A) 1

(B) 0.1

(C) 0.01

(D) 10

(8) What is the cut-off limit of human eye to see?

(A) 1 nm

(B) 100 nm

(C) 1000 nm

(D) 10,000 nm

(9) The tensile strength of carbon nanotube is _____ times more than steel.

(A) 10

(B) 100

(C) 1000

(D) 10,000

(10) How many carbon atoms are there in a bucky ball?

(A) 6

(B) 12

(C) 14

(D) 60

(11) Where should the object be placed in case of a concave mirror to get a virtual, erect & enlarged image?

(A) Between F & $2F$

(B) At $2F$

(C) Beyond $2F$

(D) Between F & pole of mirror.

(12) What is the velocity of light in

(A) 3×10^{15} m/s

(B) 3×10^8 m/s vacuum?

(C) 3×10^6 m/s

(D) 3×10^{10} m/s.

(13) In a plane mirror, If angle of incidence $i = 0^\circ$, then angle of reflection $r = \underline{\hspace{2cm}}$

- (A) 0° (B) 90°
(C) 180° (D) 260°

(14) Which type of image is always formed by a convex mirror?

- (A) Inverted, virtual & small (B) Erect, real & small
(C) Virtual, erect & small (D) Virtual & larger than object.

(15) Which type of image is always formed by a concave mirror?

- (A) Inverted, virtual & small (B) Erect, real & small
(C) Virtual, erect & small (D) Virtual & larger than object.

(16) What is the diameter of circular edges of mirror called?

- (A) Pole (B) Aperture.
(C) Axis (D) Focus

(17) What is the centre of reflecting surface of mirror called?

- (A) Pole (B) Aperture
(C) Axis (D) Focus.

(18) Where will the object be placed when the image formed, in case of a convex lens is virtual, erect & magnified?

(A) Beyond $2F$

(B) Between F & $2F$

(C) At $2F$

(D) Between F & O .

(19) Where will the object be placed, when the image formed in case of a convex lens is real, inverted and magnified?

(A) Beyond $2F$

(B) Between F & $2F$.

(C) At $2F$

(D) Between F & O

(20) Choose the one which has maximum refractive index?

(A) Water

(B) Glass

(C) Pearl

(D) Diamond

(21) The absolute refractive index of any medium is _____

(A) 1

(B) > 1

(C) < 1

(D) 0

22) The ~~image~~ distance between a pin & image formed by a pin is 2 meters. How far is the pin from the plane mirror?

(A) 2 meters

(B) 1 meter

(C) 4 meters

(D) 3 meters

23) The magnification of a plane mirror is —

- (A) < 1 (B) > 1
(C) 1 (D) 0

24) From which point of lens, a ray of light is not refracted?

- (A) Principal Focus (B) Centre of Curvature
(C) Optical Centre (D) At the edge of lens.

25) The velocity of light in a medium of refractive index n is —

- (A) $n c$ (B) $\frac{n}{c}$
(C) $\frac{c}{n}$ (D) $\sqrt{\frac{c}{n}}$

26) What should be the angle of incidence with respect to the normal of a glass medium, so that it does not undergo refraction?

- (A) 45° (B) 0°
(C) 60° (D) 90°

27) What is the angle of refraction when the incident angle equals critical angle?

- (A) 180° (B) 90°
(C) 60° (D) 0°

28) Splitting of white light into seven colours^{is} known as ?

(A) Reflection

(B) Refraction

(C) Dispersion

(D) Interference.

(29) Which colour has the least deviation in the spectrum obtained from prism?

(A) Red (B) Yellow

(C) Violet (D) Blue

(30) Blue + Red = _____

(A) Magenta

(B) Yellow

(C) Cyan

(D) Violet

(31) Which colour has least velocity in the prism?

(A) Red (B) Yellow

(C) Violet (D) Blue

32) Green leaves when seen in red light appear as _____

(A) Red

(B) Green

(C) Black

(D) White.

33) Magenta + Green = _____

(A) White

(B) Yellow

(C) Red

(D) Cyan.

34) Which colour is common from the colours reflected from blue and yellow pigments.

- (A) Blue (B) White
(C) Green (D) Yellow

35) Which colour will ^{not} be reflected when white light is incident on blue pigment?

- (A) Blue (B) Green
(C) Violet (D) Yellow.

36) On which position of the eye is image formed in an human eye?

- (A) Cornea (B) Eyeballs.
(C) Iris (D) Retina.

37) Where is the image formed in ^{the eye of} a person having near-sightedness?

- (A) On retina (B) Behind Retina
(C) On the eyeball (D) Ahead of Retina.

38) Where is the image formed in the eye of a person having far-sightedness?

- (A) On the retina (B) Behind retina
(C) On the eyeball (D) Ahead of retina.

39) What is the focal length of an objective lens of an astronomical telescope in comparison to its eye piece?

- (A) Smaller (B) Larger
(C) Zero (D) Equal

40) Which part of the eye is responsible for varying the focal length of an eye-lens?

- (A) Eyeballs (B) Retina
(C) Ciliary muscles (D) Blind spot.

41) Which type of final image is obtained by compound microscope?

- (A) Real, Erect, ^{diminished} (B) Virtual, inverted, ^{diminished}
(C) Virtual, inverted, magnified (D) Virtual, Erect, magnified

42) Which of the following instrument is used by Jewellers?

- (A) Compound microscope (B) Simple microscope
(C) Telescope (D) Kaleidoscope.

43) The unit of electric charge is —

- (A) Electron (B) Ampere
(C) Volt (D) Coulomb.

44) Who discovered electron?

- (A) Coulomb (B) Volta
(C) Ampere (D) Thomson

45) What is the unit for electric current?

- (A) Electron (B) Ampere
(C) Volt (D) Coulomb.

46) How much electric charge is present on a proton?

- (A) $6.25 \times 10^{-18} \text{ C}$ (C) $6.25 \times 10^{-19} \text{ C}$
(D) $1.6 \times 10^{-19} \text{ C}$ (D) $1.6 \times 10^{-18} \text{ C}$.

47) $1 \text{ A} = \text{--- mA}$

(A) 10^3

(B) 10^{-3}

(C) 10^{-6}

(D) 10^6

(48) $1 \text{ A} = \text{--- A}$

(A) 10^3

(B) 10^{-3}

(C) 10^{-6}

(D) 10^6

49) Which physical quantity has unit of joule/coulomb?

(A) Work

(B) Electric current

(C) Electric potential

(D) Resistance

difference

50) Which of the following relations indicates Ohm's law?

(A) $R = \frac{I}{V}$

(B) $R = IV$

(C) $P = I^2 R$

(D) $V = IR$

51) Equivalent resistance of a parallel connection is ---

(A) smaller than the smallest resistance

(B) larger than the largest resistance

(C) an average of all resistances

(D) summation of all resistances.

52) What is the equivalent resistance of the resistors R_1 and R_2 connected in parallel connection?

(A) $R_1 R_2$

(B) $R_1 + R_2$

(C) $\frac{R_1 + R_2}{R_1 R_2}$

(D) $\frac{R_1 R_2}{R_1 + R_2}$

53) What is the equivalent resistance of the resistors R_1 & R_2 in series connection

- (A) $R_1 R_2$ (B) $R_1 + R_2$
(C) $\frac{R_1 + R_2}{R_1 R_2}$ (D) $\frac{R_1 R_2}{R_1 + R_2}$

54) 1 unit of domestic energy is = _____

- (A) 1 Joule (B) 1 watt second
(C) 3.6×10^6 Joule (D) 3.6×10^6 kWh

55) kWh is the unit of _____

- (A) Electric power (B) Electric current
(C) Work (D) Electric potential.

56) When a glass rod is rubbed with silk cloth what type of charge does the rod get?

- (A) Positive (B) Negative
(C) Neutral (D) Both positive and negative.

57) How many electrons are required for 1 Coulomb electric charge

- (A) 1.6×10^{19} (B) 6.25×10^{18}
(C) 1.6×10^{-19} (D) 6.25×10^{19}

58) What is the unit of Resistance?

- (A) Omega (B) Ohm
(C) Watt (D) Coulomb

59) On which principle of electric current does a fuse work?

- (A) Chemical effect (B) heating effect
(C) Voltage effect (D) Light effect.

- 60) Who was the first person to notice the magnetic effect of electric current?
- (A) Faraday (B) Oersted
(C) Volta (D) Ampere.
- 61) Who gave the principle of electromagnetic Induction?
- (A) Faraday (B) Oersted
(C) Ampere (D) Volta.
- 62) What is the frequency of 220V AC voltage?
- (A) 50 Hz (B) 60 Hz
(C) 220 Hz (D) Zero.
- 63) Electric motor converts Electrical energy into which type of energy?
- (A) Mechanical energy (B) Heat energy
(C) Chemical energy (D) None of the above.
- 64) Which device is used to convert mechanical energy to electrical energy?
- (A) Electric generator (B) Solenoid
(C) Electric motor (D) Electric Iron.
- 65) Which instrument can indicate the presence of magnetic field?
- (A) Galvanometer (B) Ammeter
(C) Voltmeter (D) Magnetic needle.
- 66) What does the thumb indicate in the Right hand rule?
- (A) Direction of electric current (B) Direction of Magnetic field Lines
(C) Direction perpendicular to electric flow (D) Direction perpendicular to Magnetic field Lines

67) Which type of current is obtained from a battery?

- (A) D.C current (B) A.C current
(C) Both AC & D.C current (D) depends on type of battery.





68) The value of AC voltage used in our houses is _____

- (A) 210 V (B) 220 V
(C) 250 V (D) 230 V.

69) What is the frequency of AC voltage used in our domestic purpose?

- (A) 25 Hz (B) 60 Hz
(C) 50 Hz (D) 220 Hz

70) Which of the symbol given below is given for resistance?

- (A)  (B) 
(C)  (D) 

71) What is the colour of live wire coming from the main board?

- (A) Red (B) Green
(C) Black (D) Yellow

72) Appliances with less power ratings are joined with how much ampere in parallel connections?

- (A) 6 Ampere (B) 5 Ampere
(C) 15 Ampere (D) 10 Ampere.

73) What is a coil of many turns of wire wrapped in shape of a cylinder called?

- (A) Magnet (B) Solenoid
(C) Magnetic needle (D) Generator.

74) In an electric motor, what is a loop of conducting wire, placed along the axis known as?

- (A) Brush (B) Commutator
(C) Armature (D) Generator.

75) What is the value of solar constant in $\frac{\text{KW}}{\text{m}^2}$?

- (A) 1.353 (B) 1.533
(C) 1.335 (D) 1.535.

76) Which form is considered as optional source of energy for future?

- (A) Geothermal energy (B) Natural gas
(C) Hydrogen (D) Petroleum.

77) How much temperature can be obtained in the solar furnace installed at Mount Louis in France?

- (A) 2000°C (B) 3000°C
(C) 3500°C (D) 4000°C

78) How do artificial satellites obtain electrical energy?

- (A) Solar concentrators (B) Solar panel
(C) Nuclear reactors (D) Fuel available in rockets.

79) Which is the main source of energy for earth?

- (A) Sun (B) Heat
(C) Nuclear energy (D) ^{Hydal} tidal energy.

80) How much energy does the sun radiate per second?

- (A) 3.8×10^{26} joule (B) 3.8×10^{17} joule
(C) 3.8×10^{-26} joule (D) 1.7×10^{17} joule

81) How much energy reaches the surface of the earth from the sun every second?

(A) 3.8×10^{26} Joule (B) 1.7×10^{-17} Joule

(C) 1.7×10^{17} Joule (D) 3.8×10^{-26} Joule

82) Which colour of light has maximum wavelength?

(A) Violet (B) Yellow

(C) Red (D) Black.

83) Heat is propagated by _____ rays.

(A) Ultraviolet (B) Infrared

(C) Visible light (D) Transverse

84) Which form of coal is of superior quality?

(A) Anthracite (B) Bituminous

(C) Lignite (D) Peat.

85) How many carbon atoms are present in Lubricating oil?

(A) 14 to 20 (B) 10 to 14

(C) ~~20~~ More than 20 (D) 5 to 10

86) 1 a.m.u is equivalent to how many e.v. (Energy)?

(A) 1.6×10^{-19} (B) 931.48

(C) 1.66×10^{-27} (D) 0.66

87) The atomic number of transuranic elements is _____

(A) 92 (B) greater than 92.

(C) 80 (D) 90.

88) Which of the following energy sources is associated with solar energy?

(A) Fossil fuel (B) Hydal energy

(C) Geothermal energy (D) Wind energy

89) Which is an ideal place on earth for setting up of OTEC plants?

- (A) Equatorial region (B) Polar region
(C) Gulf region (D) Coastal region

90) Who was the first scientist to prepare isotopes artificially?

- (A) Fermi (B) Rutherford
(C) Hahn (D) Strassmann.

91) From which process plasma can be produced?

- (A) Nuclear fission (B) Nuclear fusion
(C) Thermonuclear fusion (D) Nuclear chain reaction.

92) Which planet of the solar system has a satellite which forms binary system?

- (A) Pluto (B) Saturn
(C) Uranus (D) Mars.

93) Which planet of the solar system has maximum number of satellites?

- (A) Mercury (B) Jupiter
(C) Venus (D) Saturn

94) 1 light year = _____ Km

- (A) 3×10^8 (B) 9.46×10^{10}
(C) 9.46×10^{12} (D) 9.46×10^{15}

95) How many satellites does Mercury have?

- (A) 30 (B) 21
(C) 8 (D) 0

96) Choose from below - What is the sun?

- (A) Star (B) Planet
(C) Satellite (D) Meteors.

97) Which of the following is not a member of the solar system?

- (A) Shooting stars (B) Artificial satellites
(C) Star (D) Asteroids

98) Which of the following space vehicle is not a space shuttle?

- (A) Coloumbia (B) Challenger
(C) Discovery (D) PSLV

99) _____ is the diameter of Milky way

- (A) 15000 light years (B) 30000 light years
(C) 10^5 light years (D) 10^6 light years

100) Which is not an artificial satellite?

- (A) Insat (B) Rohini
(C) Phobos (D) SROSS

101) Which is not a natural satellite?

- (A) Triton (B) Demos
(C) Aryabhata (D) Shanon

102) What is the periodic time of Halley's comet in years?

- (A) 67 (B) 76
(C) 86 (D) 96

103) Which planet of the solar system is hottest?

- (A) Venus (B) Mars
(C) Jupiter (D) Mercury

(104) what are shooting stars?

- (A) Comet
- (B) stars
- (C) Meteor
- (D) Meteorite

(105) Approximately How many stars are present in the Milkyway?

- (A) 10^6
- (B) 10^8
- (C) 10^{11}
- (D) 10^{22}

(106) which is the lightest planet of the solar system?

- (A) Mars
- (B) Jupiter
- (C) Venus
- (D) Saturn

(107) Which has revolving rings.

- (A) Terrestrial planets
- (B) Jovian planets
- (C) Comet
- (D) Asteroids

(108) what is the unit of rate of reaction?

- (A) Molar
- (B) Second
- (C) Molar/second
- (D) Minute

(109) Which products are obtained by decomposition of solid calcium carbonate?

- (A) CaO
- (B) CaO and CO_2
- (C) CO_2
- (D) Ca & CO_3

(110) What is the pH value of blood?

- (A) Less than 7
- (B) More than 7
- (C) 7
- (D) None of the above

(111) What will be the change in pH value of a solution when the concentration of H_3O^+ is increased in the solution?

- (A) Increases (B) Decreases
(C) No change (D) None of the above

(112) Which scientist said that on release of H^+ ions, the compound is an acid.

- (A) Arrhenius (B) Lowry Bronstead
(C) Lewis (D) Boyle

(113) Who suggested the pH scale?

- (A) Lowry Bronstead (B) Lewis
(C) Robert Boyle (D) Sorensen

(114) Which type of reaction is the formation of Petroleum by geochemical reaction?

- (A) Slow (B) Fast
(C) Very slow (D) Very fast

(115) Which scientist proved that on neutralisation of acid & base gives rise to water & salt?

- (A) Robert Boyle (B) Lewis
(C) Arrhenius (D) Newton

(116) Which acid is present in the stomach of humans?

- (A) dil HCl (B) dil H_2SO_4
(C) dil HNO_3 (D) concentrated HCl

(117) Who proposed the proton transfer theory of acid & base?

- (A) Lewis (B) Arrhenius
(C) Boyle (D) Lowry Brønsted

(118) What type of reaction is formation of NH_3 by chemical reaction of N_2 & H_2

- (A) slow (B) Fast
(C) Very slow (D) Very fast.

(119) $\text{pH} + \text{pOH} = \underline{\hspace{2cm}}$

- (A) 7 (B) 0
(C) 14 (D) 10

(120) If we increase the temperature the rate of reaction $\underline{\hspace{2cm}}$.

- (A) Increases (B) Decreases
(C) becomes very slow (D) None of the above.

(121) What is the chemical name of washing soda?

- (A) Washing Soda (B) Sodium carbonate Monohydrate
(C) Sodium carbonate Decahydrate (D) Baking soda.

(122) Which compound has smell like chlorine?

- (A) Bleaching powder (B) Plaster of Paris
(C) Washing soda (D) Baking soda.

(123) Write the molecular formula of Gypsum?

- (A) $\text{CaSO}_4 \cdot \text{H}_2\text{O}$ (B) $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$
(C) $\text{CaSO}_4 \cdot \frac{1}{2}\text{H}_2\text{O}$ (D) CaSO_4

(124) In medical field, which glass is used for endoscopy?

- (A) ^{Optical} Fibres (B) Photochromatic glass.
(C) Pyrex glass (D) Lead crystal glass.

(125) Write the percentage of carbon in hard steel?

- (A) 0.1% to 1.5% (B) 0.5 to 1.5%
(C) 0.5 to 0.4% (D) 0.4% to 0.8%

(126) Write the melting point of CaCO_3 .

- (A) 1000°C (B) 1500°C
(C) 2000°C (D) 2500°C

(127) Which metal oxide is used to prepare brown coloured glass?

- (A) Cobalt oxide (B) Manganese oxide
(C) Chromic oxide (D) Ferric oxide.

(128) Which compound is obtained by crystallization?

- (A) washing soda (B) Baking soda
(C) Bleaching powder (D) Calcium carbonate.

(129) What is added to plaster of Paris to increase its setting value?

(A) Camphor
(C) Common Salt

(B) Base
(D) Copper Sulphate

(130) Which of the following is used in paper industry?

(A) Bleaching powder
(C) Calcium carbonate

(B) Plaster of Paris
(D) Baking soda

(131) Slaked lime - Give its molecular formula?

(A) $CaSO_4$
(C) $CaOCl_2$

(B) $Ca(OH)_2$
(D) $CaCl_2$

(132) Which type of steel is used for making pipes for transfer of acids?

(A) Cobalt steel
(C) Silicon steel

(B) Stainless steel
(D) Nickel steel

(133) Which glass is used to produce flickering light after reflection?

(A) Lead crystal glass.
(C) Pyrex glass

(B) Soda glass
(D) Optical glass

(134) Mention the main constituent of lead crystal glass?

(A) sand
(C) Borax

(B) K_2CO_3 , PbO

(D) K_2CO_3 , CaO .

135) Which element does not decompose due to heat?

- (A) Na_2CO_3 (B) NaHCO_3
(C) NH_4Cl (D) NaCl

136) Write the chemical formula of Bauxite?

- (A) Al_2O_3 (B) $\text{Al}_2\text{O}_3 \cdot \text{H}_2\text{O}$
(C) $\text{Al}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$ (D) Fe_2O_3

137) Which method is used for purification of more reactive metals?

- (A) Calcination (B) Roasting
(C) Electrochemical Reduction (D) Reduction

138) Which property does Metal oxide have?

- (A) Neutral (B) Basic
(C) Acidic (D) Acid & Base both

139) Which of the following is semi-conductor?

- (A) Copper (B) Platinum
(C) Iron (D) Germanium

140) Which substance is added in Hall Herault method to decrease the melting point of Al_2O_3 .

- (A) Cryolite (B) Bauxite
(C) Lomonite (D) Copper sulphate

141

(141) Dolomite is an ore of — mineral

- (A) Potassium (B) Sodium
(C) Calcium (D) Magnesium

142) Which reaction takes place on cathode (negative electrode) in Electrolysis?

- (A) Reduction (B) Oxidation
(C) Oxidation-Reduction (D) None of the above.

143) ~~The~~ Which alloy is used for soldering of metals.

- (A) Copper & Zinc (B) Lead & Tin

- (C) Iron & Carbon (D) Nickel & Chromium.

144) In making gold ornaments which metal is used as an alloy?

- (A) Platinum (B) Nickel

- (C) Copper or Silver (D) Zinc

145) Which alloy is used for making scientific balance?

- (A) Steel (B) Brass

- (C) stainless steel (D) Magnalium.

(146) With what does Al metal react to form Al_2O_3 with release of H_2 gas.

- (A) Cold water (B) Hot water

- (C) Steam (D) Oxygen.

147) Which metal does not react with water?

- (A) Lead (B) Iron
(C) Zinc (D) Magnesium.

(148) In which ~~process~~ of the following, chemical reduction takes place?

- (A) Blast furnace (B) Electrolytic cell.
(C) Pous furnace (D) Solar furnace

(149) Write the chemical formula of cryolite?

- (A) Na_3AlF_6 (B) NaAl_2O_2
(C) $\text{Al}_2\text{O}_3 \cdot 2\text{H}_2\text{O}$ (D) NaAlF_6

(150) Which chemical substance ~~are~~ ^{is} used for stoppage of metal corrosion?

- (A) Enamel (B) Paint Inhibitor
(C) Galvanised metal (D) All of them

(151) Which is the liquid non metal element?

- (A) Carbon (B) Bromine
(C) Sulphur (D) Phosphorous

(152) Which acid is known as king of chemicals?

- (A) HCl (B) HNO_3
(C) H_2SO_4 (D) H_2CO_3

153) Which non-metal is used to prepare pesticides?

- (A) Hydrogen (B) Sulphur
(C) Nitrogen (D) Phosphorous.

(150) Which non metal is good conductor of electricity?

(A) Copper

(B) Aluminium

(C) Graphite

(D) Mercury

(155) Which of the following absorbs moisture?

(A) dilute H_2SO_4 (B) Concentrated H_2SO_4

(C) Sulphur

(D) Concentrated HCl.

(156) Which non-metal is used to make antifungal solution?

(A) Hydrogen

(B) Sulphur

(C) Carbon

(D) Chlorine

(157) Which gas is used to stop the growth of Bacteria?

(A) SO_2

(B) CO_2

(C) SO_3

(D) NH_3

(158) Which is chemical formula of Oleum?

(A) H_2SO_3

(B) H_2SO_4

(C) $H_2S_2O_7$

(D) HNO_3

(159) ~~Which gas is produced when air is~~ ^{mixture of Ammonia} ~~passed over platinum mesh~~

(159) Which gas is produced when mixture of Ammonia & air is passed over platinum gauze.

(A) NH_4Cl

(B) N_2O

(C) NO

(D) N_2

(160) Which fuel is used in fuel cell?

- (A) Methanol (B) Hydrogen
(C) Petrol (D) Diesel.

(161) Which is the main element present in the sun?

- (A) Nitrogen (B) Oxygen
(C) Hydrogen (D) Carbon.

(162) What is the shape of monoclinic sulphur?

- (A) Square (B) needle shaped
(C) Octahedral (D) Triangular

(163) By which process is sulphuric acid prepared?

- (A) Contact Process (B) Frasch process
(C) Haber process (D) Electrolysis

(164) From where can we get sulphur?

- (A) Desert (B) Sandy areas
(C) Sea coasts. (D) Volcanic regions

(165) How many non-metals are present in gaseous state?

- (A) 10 (B) 11
(C) 22 (D) 1

(166) Which compound is an insecticide?

- (A) Acetone (B) Acetic acid
(C) Acetaldehyde (D) Glucose.

(167) The reaction between Carboxylic acid & Ethanol in presence of H_2SO_4 is —

(A) Saponification

(B) Hydrolysis

(C) Esterification

(D) Decarboxylation

168) Which compound is a condensation polymer?

(A) Nylon

(B) PVC

(C) Natural rubber

(D) Teflon

169) Which enzyme is responsible for the fermentation of sugar or Molasses?

(A) Invertase

(B) Mipmase

(C) Lactase

(D) Yeast

170) Which of the following compounds is used as a nail polish remover?

(A) Acetaldehyde

(B) Ethanoic acid

(C) Acetone

(D) Methanol

171) Which of the following is used in leather industries?

(A) Propanone

(B) Propanaldehyde

(C) Propanol

(D) Propanoic acid

172) Which catalyst is used to form Methanol from Methanal?

(A) Ag_2O

(B) Platinum

(C) Nickel

(D) Salt of Copper

(173) Which substance is used as a ~~food~~ preservative?

(A) CH_3OH

(B) CH_3COOH

(C) CH_3CHO

(D) CH_3COCH_3

(174) Rubber is an ~~exp~~ example of —
type of polymer.

(A) Addition

(B) Condensation

(C) Thermosetting

(D) any other

(175) Which polymer is useful as ^{alternative to} natural rubber?

(A) Teflon

(B) Polybutadiene

(C) Neoprene

(D) PVC

176) What is process of making soap from vegetable ~~glace~~ ^{oil} known as?

(A) Decarboxylation

(B) Saponification

(C) Hydrolysis

(D) Condensation

(177) Benedict's test is used for analysis of — disease.

(A) Diabetes

(B) Malaria

(C) Scurvy

(D) Beri-beri

(178) Which gas is released on reaction of ~~Ethanoic acid~~ ^{Ethanol} with Na metal.

(A) N_2

(B) H_2

(C) O_2

(D) Cl_2

(179) Which monomer is present in Bakelite

(A) Methanol

(B) Acetaldehyde

(C) Ethanol

(D) Methanal

(180) What is meant by biochemical catalyst?
(A) Active substance (B) Chemical catalyst
(C) Hormones (D) Biocatalyst.

(181) Which group contains -anal suffix?
(A) -CHO (B) -OH
(C) $\geq C=O$ (D) C-C

(182) Through what does exchange of gases take place in an earthworm?
(A) body wall (B) skin
(C) lungs (D) on its own

(183) What is the molecular formula of glucose?
(A) $C_6H_{10}O_6$ (B) $C_6H_{22}O_{11}$
(C) $C_6H_{12}O_{11}$ (D) $C_6H_{12}O_6$.

(184) Digestive enzymes present in saliva digest _____.
(A) Starch (B) Protein
(C) Fat (D) Nucleic acid.

(185) Which organ is responsible for respiration?
(A) Chloroplast (B) Mitochondria

(C) Golgi bodies (D) ~~Ribosomes~~ Endoplasmic reticulum
(186) Which part of the root is in contact with O_2 in soil particles?
(A) Cytoplasm (B) Cell wall
(C) Nucleus (D) Root hair

187) With what does CO_2 react first during biosynthetic phase?

- (A) RuBP
- (B) starch
- (C) Glucose
- (D) PGA

~~(188) By which process does cockroach take nutrition?~~

(188) State the mode of nutrition of Cockroach.

- (A) Herbivores
- (B) Carnivores
- (C) Omnivores
- (D) Holozoic Grazing

(189) Which organism shows phagocytosis?

- (A) Man
- (B) Amoeba
- (C) locust
- (D) Pigeon.

(190) Gizzard is found in the digestive system of which organism?

- (A) Man
- (B) Amoeba
- (C) locust
- (D) Frog.

(191) What is the function of incisors?

- (A) Cutting
- (B) Tearing
- (C) Grinding
- (D) Chewing.

(192) The process which releases energy from nutrients is called _____

- (A) Respiration
- (B) Photosynthesis
- (C) Nutrition
- (D) Absorption.

(193) Which organism shows parasitic mode of nutrition?

- (A) Cuscuta
- (B) Plasmodium
- (C) Ascaris
- (D) All three A, B & C.

(194) From which organelle is electron released during light phase?
(A) Electron transport chain (B) Chlorophyll
(C) Light (D) All three A, B & C.

(195) Where does the bile duct open into?

(A) Stomach (B) Duodenum
(C) Small intestine (D) Large intestine

196) What does Amoeba make by pseudopodia?

(A) Liquid vacuole (B) Food vacuole
(C) Seed vacuole (D) Lysosome.

197) How many types of blood components are there in blood?

(A) ~~2~~ (Two) (B) Three
(C) Four (D) Five

198) Which mineral element is necessary for formation of haemoglobin?

(A) Calcium (B) Phosphorous
(C) Iron (D) Iodine

199) Which structure is responsible for transportation of water in pteridophytes?

(A) Trachea (B) Tracheid
(C) Sieve cells (D) Companion cells.

200) Which structure has lignified cell wall?
(A) Sieve cell (B) Companion cells
(C) Sieve tube (D) Trachea.

201) Which respiratory pigment is present in humans?

(A) Chlorophyll (B) Haemoglobin
(C) Haemocyanin (D) Myoglobin

202) Which is the organ for excretion in Hydra?

(A) Oral opening (B) Flame cells
(C) Osculum (D) Contractile vacuole

203) Which blood cells produce immunoglobulin?

(A) Erythrocytes (B) Lymphocytes
(C) Thrombocytes (D) Blood ^{corpuscles.} ~~cells~~

204) What chemical is released when blood platelets rupture?

(A) Prothrombin (B) Fibrin
(C) Thrombin (D) Thromboplastin

205) Where are the antigens for blood group located?

(A) On WBC (B) On RBC
(C) in plasma (D) in platelets.

206) In which part of the body does impure (deoxygenated) blood get purified?

(A) Ventricles (B) Heart
(C) Atria (D) Lungs.

207) Which is the organ for excretion in Amoeba?
(A) Nephridium (B) Flame cell.

(C) Osculum (D) Contractile vacuole

208) Which animal has osculum as organ of excretion?

(A) Amoeba

(B) Hydra

(C) Earthworm

(D) Sponges.

209) Which of the organs given below is not a part of human excretory system

(A) Bowman's capsule

(B) Contractile vacuole

(C) Henle's loop

(D) Kidney

(210) Who discovered Antigens on the surface of erythrocytes?

(A) William Harvey (B) Robert Hooke.

(C) Camillo Golgi (D) Carl Landsteiner

(211) Which valve is present between the right atrium and right ventricle of the heart?

(A) Bicuspid valve (B) Tricuspid valve

(C) Semilunar valve (D) Mitral valve.

212) In which animal is nerve net found?

(A) ~~Blue~~ Sponges (B) Hydra

(C) Earthworm (D) Cockroach

(213) Which multicellular animal lacks the nervous system?

(A) Hydra

(B) Locust

(C) sponge

(D) Tapeworm.

214) which hormone functions as growth promoter?

(A) Auxin

(B) Ethylene

(C) Abscisic acid

(D) both B & C

215) Which plant shows thigmonastic response?

(A) Vinca

(B) Sunflower

(C) Touch me not plant

(D) Bryophyllum.

216) Which hormone retards growth?

(A) Auxin

(B) Gibberellin

(C) Cytokinin

(D) Ethylene.

217) which gland regulates the secretion of hormones by other endocrine glands?

(A) Thyroid

(B) Pituitary

(C) Adrenal

(D) Pineal.

218) Which hormone is responsible for the shedding of leaves?

(A) Auxin

(B) Ethylene

(C) Gibberellin

(D) Cytokinin

219) Which flowers show photonastic response?

(A) Jasmine

(B) Sunflower

(C) Rose

(D) Shoe flower.

220) Which pigment is responsible for photo-
Retinodism?

- (A) Cytochrome
- (C) Chromosome

- (B) Phytochrome
- (D) Lysosome.

221) How do the secretions ^{flow} from hormones?

(A) Water

(B) Cytoplasm

(C) Blood

(D) Nerves

222) Which is the area for control of
blood pressure?

(A) Hind brain

(B) mid brain

(C) Fore brain

(D) visual area

223) How many pairs of spinal nerves
arise from the spinal cord?

(A) 7 pairs

(B) 17 pairs

(C) 31 pairs

(D) 21 pairs

224) What is the main function of
endocrine gland?

(A) Control & Co-ordination

(B) Combination

(C) Control.

(D) None of the above

225) Which gland is ductless?

(A) Salivary gland

(B) Stomach gland

(C) Thyroid gland

(D) Duodenal gland

226) Who controls the functioning of pituitary gland?

(A) Hypothalamus

(B) Pineal gland

(C) Parathyroid

(D) On its own.

227) In grafting, the part of the plant rooted in soil is called _____

(A) Stock

(B) Scion

(C) Sucker

(D) Rhizoids

228) What is the location of testes in human male?

(A) In abdominal cavity

(B) In vas deferens

(C) In scrotum

(D) In Penis.

229) What is the ^{process of} release of egg from ovary called?

(A) Reproduction

(B) Ovulation

(C) Menstruation

(D) Placenta.

30) Which of the following organisms shows regeneration?

(A) Amoeba

(B) Paramecium

(C) Hydra

(D) Rhizopus.

231) Which is the method by which desired characters of two plants can be combined?

(A) Cutting

(B) Layering

(C) Grafting

(D) Fragmentation.

232) Which hormone is produced from the testis?

(A) Estrogen

(B) Progesterone

(C) Aldosterone

(D) Testosterone.

233) This structure which renders protection during embryo development.

(A) Amniotic sac (B) Placenta

(C) Umbilical cord (D) Vagina

234) Which disease is caused by bacteria *Treponema pallidum*?

(A) AIDS

(B) Gonorrhoea

(C) Syphilis

(D) Hepatitis.

235) Which hormone is produced from ovary in females?

(A) Estrogen

(B) Progesterone.

(C) A & B, both

(D) None of the above.

236) Which are the accessory sex organs in males?

(A) Vas deferens (C) Testis

(C) Ureter

(D) Prostate gland

237) Where are ovaries situated?

(A) Abdominal cavity (B) Uterus.

(C) Vagina

(D) Fallopian tube.

238) What is the period before menopause known as?

(A) Parturition

(B) Gestation

(C) Menstruation

(D) Puberty

239) Which surgical process is carried out in males for population control?

(A) Tubectomy

(B) Copper-T

(C) Loop

(D) Vasectomy.

240) Which organism causes Syphilis?

- (A) ~~Treponema~~ Pallidum (B) ~~Neisseria~~ gonorrhoea
(C) Fungus (D) Parasites.

(241) Which organism causes Gonorrhoea?

- (A) Virus (B) Fungus
(C) Treponema pallidum (D) Neisseria gonorrhoea.

(242) In which animal, does high temperature facilitate birth of a new animal.

- (A) Lizard (B) Loco Insect
(C) Human (D) Turtle.

(243) Which theory was given by Darwin?

- (A) Inheritance of Acquired characters (B) Germplasm theory
(C) Mutation theory (D) Theory of Natural selection.

(244) The unit of expression of genetic information from one generation to another is —

- (A) DNA (B) RNA
(C) TNA (D) PNA

245) In which type of chromosome is the centromere slightly away from the centre?

- (A) Metacentric (B) Telocentric
(C) Submetacentric (D) Acrocentric.

246) What is the length of each helical turn of DNA molecule?

- (A) 10 Å (B) 20 Å
(C) 3.4 Å (D) 34 Å

(247) The theory of inheritance of acquired characters is explained by ---

(A) Lamarck

(B) Ernest Haeckel

(C) Weismann

(D) Hugo de Vries

(248) Which virus is responsible for causing AIDS in humans?

(A) TMV virus

(B) FMDV virus

(C) Bacteriophage virus

(D) Retro virus.

(249) With how many weak hydrogen bonds does Adenine pair with Thymine.

(A) one

(B) Two

(C) Three

(D) Four.

250) Which organ ^{of fish} is homologous to man's ~~Fore limb~~ hand? ~~and~~

(A) hind Limbs

(B) Fins

(C) Gills

(D) Lungs

251) Which scientist gave the concept that 'genes are parts of chromosomes'.

(A) Bowry & Sutton

(B) Griffith, Avery

(C) Mendel

(D) Macleod & McCarty.

252) Which chromosomes are present in female gamete

(A) $2A + XY$

(B) $A + X$

(C) $2A + XX$

(D) $A + Y$

253) Which factor is responsible for sex determination in lizard?

(A) Light

(B) Temperature

(C) Moisture

(D) Rain

254) How many nucleotides are present in one complete helical ^{spiral} structure of DNA?

(A) 2

(B) 10

(C) 20

(D) 30

255) ~~Which nitrogen bases are Adenine & Thymine (in sequence)?~~

~~(A)~~

255) The nitrogen bases Adenine and Thymine are respectively ----

(A) Pyrimidine and Purine (B) Purine and Pyrimidine

(C) Pyrimidine & Pyrimidine (D) Purine & Purine

256) What is the length of each chromosome?

(A) 0.2 to 5 μ (B) 0.2 to 2.0 μ

(C) 2 to 5 μ (D) 0.1 to 0.5 μ

257) In lizard high temperature results in to development of — embryo.

(A) Female

(B) Male

(C) Unisexual

(D) None of the above.

258) What type of air pollution is Volcano

(A) Man made

(B) Natural

(C) Both A & B

(D) None of the above.

259) Which disease is caused ^{due} to the poisonous effect of Mercury?

(A) Diabetes

(C) Marasmus

(C) Minamata

(D) Obesity

260) Increase of eutrophication causes increase in _____

(A) COD

(B) BOD

(C) DOB

(D) BOB

261) Which Institute has developed a method to purify liquid waste of sewage?

(A) NTPC

(B) NIPA

(C) NEERI

(D) NIAP

262) Which of the following is not an environmental problem?

(A) Population explosion

(B) Industrialisation

(C) Forest destruction

(D) Storage of water

263) Which pollutant is responsible for Bronchitis?

(A) O_2 , CO_2

(B) CO , CO_2

(C) SO_2 , NO_2

(D) Cl_2 , H_2S

264) Due to what Asbestosis is caused?

(A) Silicon

(B) Carbon

(C) Silica

(D) Asbestos

265) Which method is used to control particle sized pollutants?

(A) Combustion

(B) Wet scrubbers

(C) Electrostatic precipitator

(D) Electrolysis

266) Which is biodegradable pollutant?

(A) Paper

(B) Mercury

(C) Lead

(D) Arsenic

267) Which type of pollution is responsible for the death of micro-organisms and ~~fishes~~ aquatic animal

(A) Water pollution (B) Soil pollution

(C) Noise pollution (D) Air pollution

268) Which gas is responsible for Acid rain?

(A) H_2

(B) SO_2

(C) O_3

(D) O_2

269) Which pesticide is non biodegradable?

(A) DDT

(B) TNT

(C) PMT

(D) None of the above

270) In which year 'Environment Protection Act' was established?

(A) 1980

(B) 1981

(C) 1983

(D) 1986

271) How many steps are there for treatment of sewage water?

(A) One

(B) Two

(C) Three

(D) Four

Science and Technology.

Section - B

Total Marks : 15.

1. Who proposed the term nanotechnology first?
2. In which book define the true definition of nanotechnology by Eric - Drexler?
3. What is technology?
4. What is nanotechnology?
5. Who invented the STM?
6. Who discovered the Bucky Ball?
7. Who conceptualized the carbon nanotube?
8. What are the types of carbon nanotubes?
9. List out the areas of nanoscience.
10. What are fullerenes?
11. What is the importance of carbon nanotube in development of nanotechnology?
12. Give the full form of STM.
13. Give the full form of AFM.
14. What is nanoscience.
15. Mention two main characteristics of nano material.
16. Why nanomaterials like sticking?
17. When carbon atoms have property of solid like plastic.
18. Why high tensile strength of the Carbon nanotube?

19. Why carbon nanotube good conductor of heat?
20. What is light?
21. Which type of waves are light waves?
Mechanical or Non-mechanical?
22. What is the type of curved mirror having focal length $+10$ cm?
23. What is absolute refractive index?
24. In which medium velocity of light is higher water or glass?
25. Give the names of two phenomenon, due to refraction. in practice.
26. What is the SI unit of the power of lens?
27. If the power of convex lens is 4 D then what is the focal length in cm?
28. One lens has power of $+2.0$ D. What must be the type of lens?
29. State the Snell's law.
30. What is magnification?
31. Give wavelength of visible light in term of meter.
32. What is meant by mirror image?
33. Which kind of image can not be caught on screen?

34. Write definition of reflection of light ?
35. What is meant by regular reflection of light ?
36. What is meant by irregular reflection of light ?
37. Give an example of regular reflection ?
38. Which type of image is formed by convex mirror ?
39. ~~Refractive~~ On what refractive index medium depends ?
40. What is angle of deviation ?
41. Which instrument is used to measure of the power of lens ?
42. What is dispersion of light ?
43. Give the reason for dispersion of white light by prism.
44. Which colour is at the bottom of the spectrum obtained by prism ? Why ?
45. Which colour has the least velocity in prism ?
46. Which colour is at the center of the spectrum obtained by prism ?
47. Why ~~does~~ an object appears black ?

48. An object reflecting all colours of incident light what should be the colour of that object?
49. Give names of primary colours of light!
50. What are the additive mixture?
51. What are ~~secondary~~^{composite} colours?
52. Give, ~~the~~ names of three primary pigments of dispersion.
53. Give the function of eyelens.
54. Write the function of ciliary muscles.
55. When does near sightedness eye defect arises?
56. When does far sightedness eye defect arises?
57. Which lens is used to remove near ~~sighted~~ sightedness defect?
58. Which lens is used to remove far sightedness defect?
59. In which direction rainbow is seen in the morning during rainy season?
60. Give the names of colours from bottom to top of the spectrum obtained by prism.
61. Which are the additive colours?
62. What do you mean by defect of eye?

63. In compound microscope where object placed ?
64. Which instrument is used to observe astronomical objects ?
65. Give definition of electric current.
66. What is electric potential difference ?
67. Write Ohm's law.
68. Which type of wire used in a fuse ?
69. Define the unit of electrical energy.
70. What are electrolytes ?
71. Write the principle of electroplating.
72. Define the difference of electro magnetic induction.
73. Why resistance arises in conductance ?
74. Give names of two instrument working on heating effect of electric flow of current.
75. On what does the heat produced by electric current depend ?
76. Write the unit of electric power.
77. What type of graph is found in Ohm's experiment for $V \rightarrow I$?
78. Which is the unit of resistance ?
79. What is 'Free Electron' ?

80. Which is bad conductor?
81. Who invented simple cell?
82. How can you get the electric potential difference?
83. What is resistance of conductor?
84. Define resistance of 1 (one) ohm.
85. 1 kwh ~~is~~ equal to how much ~~watt second~~ joule?
86. What is electroplating?
87. Write principle of Volta's cell.
88. 1 kwh equals to how much watt second?
89. Define 1 Volt.
90. By which instrument we can measure electrical potential difference?
91. If three resistance 2Ω , 3Ω and 6Ω are joined in parallel, then what is equivalent resistance?
92. If consumption of electricity is 200 unit used then how much energy consumed?
93. What is an electric potential?
94. What is induced electric current?
95. List out the types of generator.
96. What is over loading?
97. The arrangement that protects electric circuit and appliances from the damage by high voltage!

98. What is called a loop used in electromagnetic induction ?
99. What is electromagnet ?
100. By which object direction of current will reverse after every half rotation in electric motor ?
101. Which metals are used to make fuse wire ?
102. What type of magnetic field due to a current carrying straight conductor ?
103. What is voltage and hence current will be induced in the conducting loop ?
104. In which part of solenoid do we find uniform magnetic field ?
105. What can be ~~concluded~~^{concluded} from Oersted's observations ?
106. When will the current carrying wire experience no force in the magnetic field ?
107. If we ~~can~~ keep the magnet ~~near~~^{near} the loop so loop have induced voltage.
108. What is the colour of the wire used for earthing ?
109. What is light made up of ?
110. Which waves having wavelength range of 8000 \AA to 10000 \AA ?

111.

112. Which waves having wavelength range of 100 \AA to 4000 \AA ?

113. What is meant by ~~renewable~~ source of energy?

114. In what form do we get energy from sun?

115. How much mirrors can be used in the solar furnace, which is installed at Mount Louis, in France?

116. Which devices convert solar energy into electrical energy?

117. What is called the ~~we jani~~ ~~more~~ ~~than~~ number of solar cell in series and parallel connections?

118. What is wind?

119. What are wind energy farms?

120. Where ~~are~~ wind energy farm is set up in Gujarat?

121. Where ~~are~~ a hydroelectric power station is installed in Gujarat?

~~How~~ ~~is~~ ~~energy~~ ~~obtained~~?

122. Give full form of OTEC.

123. What is the name given to the melted rocks inside the earth crust?
124. How is Biogas obtained?
125. What is the by-product of Biogas?
126. Write the full form of LPG and CNG
127. What is ignition temperature?
128. How much heat is produced when ~~1~~ complete combustion of 1 gm ~~fuel~~ fuel.
129. Which fuel has maximum calorific value?
130. ~~Nuclear Reactor~~ Give the principle of Nuclear Reactor.
131. Which materials are used as coolant?
132. Give the uses of coke.
133. What is complete combustion?
134. What is corona?
135. Give the names of terrestrial planet.
136. Give the names of two planets nearest to earth.
137. What is the process of ~~combining~~ called when the two light ~~nuclei~~ nuclei to form heavy ~~nuclei~~ nuclei?
138. What is used as ~~moderator~~ moderator in nuclear reactor?

139. ~~What is the~~ How many times is the size of Jupiter bigger than earth?
140. Between ^{which} two planets asteroids are found?
141. What is meteorite?
142. What is cloud of dust?
143. ~~Which sphere~~ what are celestial spheres comprising of dust and icy rocks?
144. of which gases are stars made of?
145. How much angular distance does moon cover in the ecliptic?
146. How many minutes does star rise early?
147. Which milky way is oldest?
148. Which type of galaxy is found in large numbers in our universe?
149. How many years ago did the explosion take place according to big bang theory?
150. Which type of ~~solid~~ liquid ~~fuel~~ fuel is used in rocket?
151. What is an equatorial orbit?
152. ~~Why~~ ~~purpose~~ What is the main purpose to launch cartosat satellite in space?
153. Write the short name of Geo synchronous satellite launch vehicle.

154. Write the full form of PSLV
155. Write the full form of INSAT.
156. How can we study the detail of galaxies ?
157. 100 light year equal to how many meter ?
158. Which artificial satellite is used only for educational purpose ?
159. What is the height of geostatic orbit with respect to surface of earth ?
160. What is 1 molar solution ?
161. What is physical equilibrium ?
162. Give the definition of Rate of reaction.
163. Give the definition of Molarity.
164. Law of active mass.
165. What is according to Lewis acid-base principle.
166. Definition of pH.
167. Why the pure water is neutral ?
168. What is the base of molar H_3O^+ ?
169. In chemical reaction ~~→~~ \rightleftharpoons indicates what ?
170. What will be the pH of solution containing ~~10⁻⁴~~ H^+ with concentration $1 \times 10^{-4} \text{ M}$

171. If $\text{pH} = 7$, what type of solution it is?
172. Give the examples of physical changes?
173. If the solution has $\text{pH} = 5$, what the effect of solution on blue litmus?
174. From which place impure sodium carbonate is found?
175. ~~What~~ ~~gas~~ What will be the effect on the crystal of washing soda when it is kept in air?
176. Write the chemical formula of Borex?
177. What is lime light?
178. Give the process of manufacture of Bleaching powder.
179. When plaster of paris is converted into dead burnt?
180. Which chemical responsible for the property of automatic darkening of photochromatic glass?
181. Write the uses of coloured glass.
182. From which permanent magnet is made up?
183. Give the full form of R.C.C.
184. What is calcination?
185. Write the important properties of Stainless steel.

186. Write the names of substances which are constituents of portland cement.
187. How can we get opaque glass?
188. ~~Iron~~ ^{Write} Alloy of Iron, Nickel and Chromium
189. What is the amount of impurity of copper in Germanium used as a semiconductor to terminate the chain reaction?
190. Which metals are purified by Van Arkel method?
191. Name metals existing in liquid state.
192. Write the chemical formula of rust.
193. Which is the metal, which passes less amount of heat?
194. Which metals are reduced by Carbon?
195. What is Slag?
196. What is metal corrosion?
197. What is 22 carat gold?
198. On what ^{does} the reactivity of metal depend?
199. Which characteristics are essential for alloys?
200. Which elements are extracted from liquid portion of earth?

- 201) Name semi conductors
- 202) Why is there restriction in chain reaction?
- 203) Which strong smelling gas gives burning sensation in eyes & nose?
- 204) Which gas causes irritation in throat?
- 205) Which catalyst ~~is~~ used in Industrial preparation of Hydrogen?
- 206) Due to which non-metal life is not possible which are Neutral oxides?
- 207) What is absorption?
- 208) Who discovered Hydrogen?
- 209) For preparation of which medicine Ammonia is used?
- (210) Which non metal element is used for making gun powder?
- 211) Name two ores of Sulphur
- 212) How are the oxides of Non-metals?
- 213) Give names of Hydride compounds
- 214) On which physical properties of Sulphur is Frasch process based.
- 215) Which acid is Hygroscopic?
- 216) Which type of respiratory process is Fermentation

218. Which is the colour of flame obtained when ethanol is burnt in air?
219. Write molecular formula of Sodiumborohydride.
220. Write full form of PVC
221. Which is the monomer unit of natural rubber?
222. Which factor is responsible for the property of high temperature resistance power in neoprene
223. What is the aqueous solution of Methanal called
224. Which substances are obtained on hydration of ethene?
225. Chemically what is soap?
226. Of what is sodalime a mixture?
227. Which is repeating unit of polythene?
228. Which gas evolves when sodium reacts with Alcohol?
229. Name the catalyst of Esterification
230. Write formula of Vinegar?
231. Write test of identifying aldehyde
232. Define Nutrition
233. Write full form of NADP
233. Which type of nutrition Cuscuta has?

235. State the mode of nutrition of amoeba.

236. What does human digestive system consist of?

237. Why do living organisms need energy?

238. Which pigments are required for photosynthesis?

239. From where saprophytic bacteria get food?

240) what is meant by photophosphorylation?

241) In which part of chloroplast ~~light~~ ^{biosynthetic} phase takes place?

242 Write the names of excretory organs of grasshopper.

243. Which is the part connecting digestive and excretory system known as?

244. Name respiratory organ of earthworm

245. Where is voice box situated?

246. From what does Xylem get strength.

247. Which metal is present in

haemoglobin

248. Where blood cells are produced?

249. Name 2 blood cells without nucleus?

250 From where is thromboplastin generated.

251. Where are antibodies situated in blood group

252. Give 3 names of excretory organ of earthworm.
253. Which W.B.C produced antibodies
254. How water flows in gymnosperms
255. How much water is utilised from leaves for photosynthesis and metabolism?
256. Who controls metabolic activities of sieve tube
- 257) Where blood cells are produced?
258. What is function of thrombin?
259. Which is excretory unit?
260. Where does the kidney open into?
261. How the plants ~~do~~ coordinate?
- 262 Name growth inhibiting hormones.
263. Which pigment is necessary for photoperiodism?
- 264) How many nerves are there in a spinal cord.
- 265) What is reflex action?
- 266) which gland control the other gland of the body?
- 267) By which organs of nervous system stimuli is identify in higher animals.
- 268) What is photonestic response?
- 269) What is thigmonastic response?
- 270)

- 270) what is reflex arc?
- 271) Mention the work of ~~cerebrum~~ brain in human.
- 272) Which structure protects the brain?
- 273) State the function of cerebrum.
- 274) which structure protects the spinal chord?
- 275) State the location of cerebrum.
- 276) what is reproduction?
- 277) Give the name of two sexual hormones of female.
- 278) what is ovulation?
- 279) what is fertilization?
- 280) where is embryo formed in human?
- 281) Give location and function of placenta.
- 282) What is the full form of WHO?
- 283) what is re-generation?
- 284) what is vegetative propagation?
- 285) Name the Method of Artificial vegetative propagation!
- 286) what is the function of Testis?
- 287) what is the function of ovary?
- 288) ~~State the names of venereal diseases.~~
State the function of amniotic fluid.
- 289) Write the names of Birth Control tools.
- 290) State the names of Venereal diseases.

291) Name the two factors of origin of evolution,

292) Write the full form of RNA.

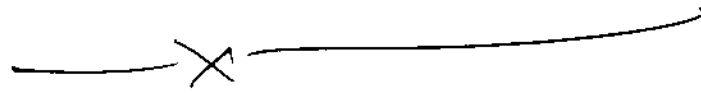
~~Q992~~

293. What is a Satellite ?
294. What is limitations of Darwinism?
295. ~~What are the two main factors responsible for biological evolution?~~
295. Name any two vestigial organs found in man.
296. What is the diameter of chromatids?
297. What are homologous chromosomes?
298. ~~What is~~ How much ^{base} proportion of purine and pyrimidines in a DNA molecule?
299. Name the ~~which~~ ^{who} scientist has given principle of inheritance of acquired characters.
300. What is ~~analogous~~ homologous organs?
301. Which animal has scientific name of *Chrysema picta* ?
302. What is heredity ?
303. In what is the heredity information conserved ?
304. Who suggest the model of DNA molecule ?
305. What is the name of extra chromosome found in male insects?

306. How many genes are there in a human cell?
307. What ^{aspects} ~~is~~ studied in genetics?
308. Write full form of DNA.
309. What is Carcinogen?
310. What is meant by neutralization?
311. Write the full form of NEERI.
312. What is bio-degradable pollutants?
313. Which process is responsible for skin cancer.
314. Give two names of diseases spread through dust particles.
315. What is biological - magnification?
316. Give the name of ~~biodegradable~~ ~~non-biodegradable~~ pollutants.
317. In which nation Minamata disease shown first?
318. What is used to remove SO_2 and NH_3 from polluted air?
319. Give example of non-biodegradable pollutants.
320. What are the two main sources of air pollution?
321. Write full form of BOD.

322. In which year : "The motor vehicle Act" law is established ?

323. For which reason Nitrate and ~~Phosphat~~ Phosphate is increase in water. ?



Science and Technology

Part-C

Marks: 24

- 1) Explain Difference between Nanoscience and Nanotechnology?
- 2) Discuss the structure of a Bucky ball.
- 3) Describe the importance of carbon in nanotechnology.
- 4) State the uses of Buckyball and carbon nanotubes?
- 5) State the use of nanotechnology in Healthcare!
- 6) Explain how nanotechnology plays an important role in Security!
- 7) Explain the influence of nanotechnology on environment.
- 8) "Nanotechnology plays by different rules." Explain the statement.
- 9) When object is placed at in front of the convex mirror, draw ray diagram which shows position and nature of the image.
- 10) When object is at the centre of curvature of the concave mirror draw the ray diagram, which shows position and nature of the image.
- 11) Define Power of lens and its unit.
- 12) How will you find the focal length of convex mirror?
- 13) Explain Real and Virtual reflection
- 14) Difference between: Real and Virtual reflection.

- 15) Difference between: Concave mirror and Convex mirror
- 16) Difference between: Concave lens and Convex lens.
- 17) If focal length of convex lens is 0.40 m , find its power?
- 18) State the characteristics of image obtained by plane mirror?
- 19) In case of curved mirror explain Focus and Centre of curvature.
- 20) What is refraction of light? What are the laws of refraction?
- 21) Explain the following terms for a convex lens: (1) Principal axis (2) Optical Centre.
- 22) What is a spectrum? Give the colours which are obtained in the dispersion of white light?
- 23) What are composite colours? Give the examples.
- 24) Explain the Far sightedness.
- 25) On observing a blue substance through red glass it appears black - give reason.
- 26) Difference between: Near sightedness and Far sightedness.
- 27) Difference between compound microscope and Astronomical telescope.
- 28) Explain why a leaf appears green and rose red?
- 29) What are Primary colours?

- 30) What do you mean by defect of eye? Give its type!
- 31) What are the additive mixtures?
- 32) Define electric current and write its unit.
- 33) What is resistance? Why is it caused in a conductor?
- 34) Write advantages of parallel connections.
- 35) Difference between Series connections and Parallel connections of resistors.
- 36) Explain the importance of electricity in our everyday life.
- 37) What is an electric charge? Give formula and its unit.
- 38) If an electrical lamp lights for 2 hours drawing current of 0.4 A. Calculate the amount of charge that passed through the lamp.
- 39) What do you mean by free electrons?
- 40) One should not touch an electrical switch with wet hands. Give reasons.
- 41) Three resistors $R_1 = 5\Omega$, $R_2 = 8\Omega$ and $R_3 = 12\Omega$ are joined in series with a battery of 4V. Draw the circuit diagram and show the current direction, calculate the value of current.
- 42) Three resistors $R_1 = 5\Omega$, $R_2 = 10\Omega$ and $R_3 = 30\Omega$ are joined in parallel with a battery of 12V. Draw the circuit diagram and show the current direction, calculate the value of current.

- 43) A lamp of 400 watts glows for 2 hours daily. Calculate the energy consumed in 30 days.
- 44) An electric iron draws a current of 5A. If its resistance is $44\ \Omega$. Calculate the energy consumed in 5 minutes.
- 45) Define the electric potential difference.
- 46) Write the Ohm's law and write its equation.
- 47) Give the disadvantages of series arrangement.
- 48) What is an electrolysis?
- 49) Calculate the number of electrons required for conduction of 1 A current through conducting wire.
- 50) Find the electric current when $50\ \Omega$ heater is connected to 220V.
- 51) Magnetic field produced by live wire depends on which factors.
- 52) Explain electromagnetic induction.
- 53) On which factor electromagnetic induction depends on in a live wire.
- 54) Explain the force arises when linear wire kept in magnetic field.
- 55) Write the principle of an electric motor.
- 56) Write the Right Hand Thumb rule.
- 57) What are the advantages of AC current.
- 58) What are the disadvantages of DC current.
- 59) Importance of an earthing wire.

- 60) What is short circuit? Explain
- 61) Difference between: AC and DC current.
- 62) Which type of fuels are used by us in our daily life? what is its importance as a source of energy?
- 63) How is electrical energy generated in traditional power stations?
- 64) Why is it necessary to judiciously use non-renewable sources of energy?
- 65) 'Wood is a renewable as well as non-renewable source of energy' explain.
- 66) Give the characteristics of infrared radiations.
- 67) Describe the utility of solar energy.
- 68) Discuss why the use of solar cell ^{is} limited.
- 69) Uses of solar cell
- 70) Advantages and Disadvantages of wind energy?
- 71) Give the advantages and limitations of Hydal Power station
- 72) At which place should the OTCE plant be set up?
- 73) Write short note geothermal energy source.
- 74) Why is hydrogen gas considered as a great potential source of energy for the future?
- 75) What is a fossil fuel? Give names of fossil fuels

- 6) Give various uses of coal.
- 7) What precaution should be taken when using LPG?
- 8) Write a short note on CNG.
- 9) Difference between complete and incomplete combustion.
- 10) Which institution in India does research in nuclear energy?
- 11) Where are nuclear power plants situated in our country?
- 12) Explain how the energy obtained in nuclear fusion reaction is better than the fission reaction.
- 13) How is nuclear waste of the nuclear reactors disposed?
- 14) What is a solar family? Give the name of its planets in order.
- 15) Sun is essential for the origin and evolution of life on earth. Explain.
- 16) Give common characteristics of terrestrial planets.
- 17) Give common characteristics of the Jovian planets.
- 18) What are meteorites and shooting stars?
- 19) Write a note about Halley's Comet.
- 20) Why is the study of comet interesting for scientists?
- 21) What are nakshatras?
- 22) Stars are found to rise 4 minutes earlier in the sky everyday. Explain the above statement.
- 23) Write a note on night sky.

- 94) Explain the Principle of Rocket.
- 95) What is a multistage rocket? Give its uses.
- 96) Give the working of space shuttle in space.
- 97) What are artificial satellites? what type of appliances are used in it?
- 98) Write the uses of artificial satellite for communication.
- 99) Difference between Equatorial orbit and Polar orbit.
- 100) What is a chemical reaction? Give its example.
- 101) Write an example of physical change.
- 102) Write an example of reversible processes.
- 103) Write an example of irreversible processes.
- 104) Give definition of forward and reverse reactions.
- 105) State the requirements for chemical equilibrium.
- 106) Explain, giving example of chemical equilibrium.
- 107) For the reaction, $N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$
Write down the formulae for K_p and K_c .
- 108) State properties of acid and base according to Robert Boyle.
- 109) Explain, exothermic and endothermic reaction.
- 110) Calculate the molarity of the solution having 196 g H_2SO_4 in 4 litres of aqueous solution.
(Molecular weight of $H_2SO_4 = 98 \text{ g/mole}$)

111) Milk stored at room temperature gets spoiled earlier in summer than in winter.
Give reason

112) Write the characteristic of Solvay's method.

113) Write the uses of bleaching powder.

114) Explain: preparation of 'Portland Cement'!

115) When sodium carbonate and sand is heated in a furnace at 1100°C -----
Give the chemical equation and observation.

116) Write the uses of steel.

117) When gypsum is heated carefully, plaster of Paris is formed. Give reason.

118) Explain control of chemical reaction is necessary while making calcium carbonate.

119) State important properties of plaster of Paris.

120) Explain: Production of bleaching powder.

121) What is meant by efflorescence? write the name of the compound showing efflorescence.
Answer on the basis of reaction.

122) Explain the preparation of lime.

123) Write the use of photochromatic glass.

124) Write a note on: Magnetic separation.

125) Explain the process to remove light particles or centrifugal method.

126) Explain the reactions of metals with calcium.

127) Explain importance of pure metal.

128) Write the 'Importance of use of terpentine oil' in froth floatation process.

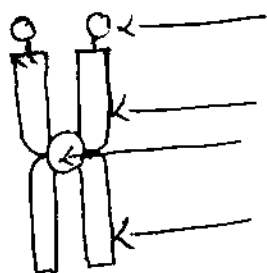
- 129) State the Prevention of Corrosion.
- 130) Explain Aluminium vessels should not be washed again and again.
- 131) When aluminium hydroxide is heated at 1200°C write the chemical equation.
- 132) Write a note zone refining Process.
- 133) Write a note various stages in the metallurgy.
- 134) What is calcination? Explain with example.
- 135) How paint stop the metal corrosion.
- 136) Write four physical properties of non-metals.
- 137) Explain the preparation of hydrogen gas with chemical reaction.
- 138) Write in short manufacture of NH_3 by Haber's process.
- 139) Write the uses of sulphur.
- 140) Write the uses of sulphuric acid.
- 141) Write the ~~equations~~ ~~of the reactions of~~ note on allotropes of sulphur and its formulae.
- 142) Explain the effect of temperature on Sulphur.
- 143) Sulphur dioxide is responsible for acid rain. why?
- 144) Explain why sugar become black when dilute sulphuric acid is mixed with it.
- 145) Write the uses of hydrogen.
- 146) Explain the Physical Properties of ~~ammonia~~ ammonia.

- 147) Difference between Rhombic sulphur and Monoclinic sulphur.
- 148) Write about the 'Production of ethanol by fermentation.'
- 149) Write short note on: Fehling's test.
- 150) Write a note on industrial Production of "Propanone".
- 151) Importance of Fermentation
- 152) Write the uses of Acetic acid
- 153) Write the reactions of preparation of Polyester compounds.
- 154) Write short note on: Production of Soap.
- 155) Which qualities of Vulcanised rubber make it different from natural rubber.
- 156) Why soap does not form foam in hard water?
- 157) Write the equations of the reactions of Ethanoic acid with Na_2CO_3 .
- 158) Explain with example Esterification
- 159) What is meant by 'unsaturated' -
Polymer? Give its example.
- 160) Difference between light phase and Biosynthetic phase.
- 161) Show the relation between host and Parasite.
- 162) Types of human teeth :
- 163) Difference between aerobic and anaerobic respiration
- 164) Short note: Exchange of respiratory gases in roots.
- 165) Explain effect of temperature on Photosynthesis
- 166) Define and equation of aerobic respiration.

- 167) Write anaerobic respiration and equation.
- 168) What is nutrition? Name the types of nutrition.
- 169) Describe the exchange of gases in tissue.
- 170) Modes of nutrition in plants write a short note.
- 171) What is photosynthesis? Write the equation for photosynthesis.
- 172) Difference between Tracheid and Trachea.
- 173) On which factor excretion and transpiration?
- 174) State the Translocation of food in higher plants.
- 175) Difference between Sieve tube and Companion cell.
- 176) Describe in short Ascent of sap.
- 177) Explain the Blood group having Rh factor.
- 178) Define (1) conduction (2) Excretion
- 179) Mention two functions of WBC.
- 180) Where is thromboplastin produced?
- 181) What is blood clotting? Write its function of cell wall of cells which have clotted.
- 182) Which type of arrangement is there in different animals for excretion and transpiration?
- 183) Describe in short Platelets (Thrombocytes)
- 184) What is tropism? ~~used~~ write down kinds of tropism
- 185) What is day-neutral plants? Give example.

- 186) Describe in short Nastic movement.
- 187) State the characteristics of hormones.
- 188) Name four endocrine glands.
- 189) What is phototropism? Give its example.
- 190) Describe in short Photoperiodism.
- 191) ~~Explain reflex action~~
What is reflex action? Give two examples.
- 192) ~~Explain~~ Explain two types of autonomous nervous system.
- 193) Where is located in the cerebellum? and its function.
- 194) State the two names of growth promoting plant hormones.
- 195) What are the growth inhibitory hormones? Write its effect.
- 196) ~~Explain~~ What is ~~sex~~ reproduction? and write the two main types of reproduction.
- 197) Difference between Sexual reproduction and Asexual reproduction.
- 198) Reproductive system of a woman.
- 199) Write the Full name. WHO and NGO.
- 200) Give location and function of Placenta.
- 201) Differentiate between menarche and menopause.
- 202) Difference between Testis and Ovary.
- 203) Explain briefly about reproductive health.

- 204) Name the main sex organs in man, write accessory sex organs in men.
- 205) Function of sexual hormones.
- 206) Write the precautions to be taken to maintain reproductive health.
- 207) What is homologous organs? Give its example.
- 208) State the types of chromosomes.
- 209) Write two points difference between variation and Heredity.
- 210) Give evidences for ~~evolution~~ ~~vestigial organs~~ to support evolution.
- 211) What is mutation? who gave the mutation theory?
- 212) Give evidences from vestigial organs to support evolution.
- 213) Importance of DNA
- 214) Draw the diagram DNA Model
- 215) Give the information about Acrocentric chromosomes.
- 216) Define organic evolution.
- 217) Write the name of different evidence of inheritance.
- 218) Explain Ancient fossils by giving an example.
- 219) Label the indicated parts.



- 219) What is Green house effect?
- 220) Write the sources of water pollution.
- 221) Prevention and control of land pollution.
- 222) Description of biodegradable pollutants.
- 223) What are the sources of air pollution? Give example.
- 224) Give information environmental balance.
- 225) What are pollutants? Give its name.
- 226) What are wet scrubbers.
- 227) Explain the environmental problems.
- 228) Write the names of biological and physical components of environment?
- 229) Write a short note on 'oxidation Pond'.
- 230) What is sedimentation?

Section-D

- 1) What is the role of carbon in progress of nanotechnology?
- 2) Explain structure of carbon nanotube.
- 3) Explain how nanotechnology plays an important role in security?
- 4) Write short notes on: "Nanotechnology and Healthcare"
- 5) What improvement will nanotechnology bring about? Explain.
- 6) Write short note on "Fullerene."
- 7) Discuss the characteristics and properties of carbon nanotube.
- 8) Define angle of incident and reflection. Also write ~~rules~~ laws of reflection.
- 9) What is curved mirror? Explain focus and principal focus.
- 10) Which three rays are used to get image formed by curved ~~convex~~ mirror? - Explain with figure.
- 11) Discuss Notation method for curved mirror.
- 12) What is meant by magnification? Derive its formula.
- 13) What is refraction? write its laws?
- 14) State and explain Snell's law.
- 15) Which three rays are used to get image formed by lens? Explain taking example of concave lens.

16. Discuss notation method for curved lens.
17. What is meant by total internal reflection? Explain.
18. Explain: ~~Mirage~~ Mirage
19. Explain dispersion of white light by prism.
20. How dispersion of white light by prism is obtained? Explain with figure.
21. Write short note on superposition of primary colours?
22. With appropriate example explain subtractive mixture method for pigment.
23. Write short note on: Near Sightedness
24. Write short note on: Far Sightedness
25. Define electric potential and write its unit.
26. Explain Electric potential difference and discuss working of battery.
27. Write Ohm's law. Plot graph for $I \rightarrow V$ and explain.
28. Draw figure showing parallel connection of resistors and also write its advantages.
29. What is electroplating? Explain giving example.
30. What is meant by electric power? Define its unit.
31. What is electrolysis? Write only Faraday's Law.
32. Explain simple experiment showing relation of magnetic field with electric current. Give conclusion of it OR
33. Describe the experiment showing formation of magnetic field on passing current through coil of conducting wire.

34. Explain construction of solenoid and explain effect of current passing through coil.
35. Explain Direct current and Alternating current with figure.
36. Discuss in detail the precautions to be taken while using electricity.
37. Write short note on fuse.
38. Describe domestic electrical wiring ~~is~~ for AC voltage with diagram. Give notation of line wire, neutral wire and earthing wire.
39. What is renewable and non-renewable energy sources of energies? Write advantages of their classification.
40. Give classification of electromagnetic spectrum.
41. Write short note on solar water heater.
42. Why wind is depends on sun? Write uses of wind energy.
43. What is OTEC? How OTEC plant works?
44. Write a note on Bio energy.
45. How smokeless chullahs are more advantageous than common chullahs? - Explain
46. Give the composition of coal, and give information of different type of coal.
47. Describe the condition of burning of the fuel with suitable example.
48. Describe in details any six characteristics of an ideal fuel.

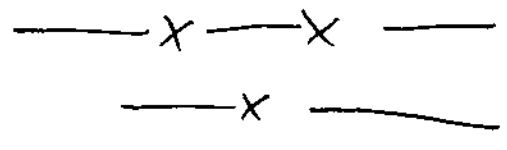
49. How energy is formed during nuclear fission? - Explain
50. Write short note on Nuclear hazards.
51. How energy is generated in sun and stars? Explain.
52. Write the importance of Earth's atmosphere.
53. What are shooting stars? write its construction why they are called tail stars?
54. Describe the various theories (beliefs) regarding the origin of universe.
55. Explain the construction of space shuttle.
56. How the launching of artificial satellite is done by space shuttle.
57. What types of information can be obtained through remote sensing satellites.
58. Explain mathematical form of rate of chemical reaction.
59. Derive mathematical form for law of chemical equilibrium.
60. Describe the effect of (i) state of solid substance and (ii) temperature of system on the rate of reaction.
61. Write the principle of Arrhenius acid-base and write its limitation.
62. Explain solvay method for production of ammonia.
63. Write properties of slaked lime.
64. Explain preparation of common glass.

65. Explain production of steel by Bessemer process.
66. Give any six type of glass and write their uses.
67. Write any six uses of plaster of Paris.
68. Explain purification of metal by liquification method.
69. Explain: The reactivity series of metals.
70. Explain: Earth is a treasure of elements.
71. Write the different steps of metallurgy. And ~~write~~ - explain in short.
72. Explain chemical reduction method.
73. Write physical properties of metal.
74. Write process of metal with acid, chlorine and water.
75. Explain with example: Electrochemical reduction.
76. Write importance of non-metal.
77. Explain the method to obtain pure hydrogen in laboratory.
78. Explain in short: Frasch Process.
79. Write chemical properties of ammonia.
80. How sulphur is obtained from natural gas and mineral oil.
81. Write chemical properties of hydrogen.
82. ~~Write~~ Distinguish metal-nonmetal on the basis of - chemical properties.
83. What are enzymes? Describe process of three different enzymes.

84. How you will convert propenone into propenol and ethanoic acid?
85. Explain: "cleansing" action of soap and detergent."
86. What is nutrition? Explain nutrition in animals.
87. Describe digestion in grass hopper.
88. Write short note on respiratory organs of insects and its functioning.
89. Describe mechanism of breathing in humans.
90. Write short note on exchange of gases in root and stem.
91. Describe nutrition process in amoeba
92. Explain ~~photosynthesis~~ step of biosynthesis step of photosynthesis.
93. Write short note on: Transportation of minerals in plants.
94. Describe blood clotting.
95. Explain in short: Blood groups and blood transfusion.
96. Explain Lymphatic system.
97. How blood flows in human heart? -
Explain
98. Describe process of wine formation.
99. Explain: Osmoregulation.
100. Explain in short: Chemical coordination.

101. Explain in short: Photo periodism.
102. What is reflex action? - Explain.
- *103. What is nastic movement? explain photo periodism.
104. Explain co-ordination and co-regulation in plants.
- *105. Describe: Photo periodism.
Explain involuntary nervous system.
106. ↓
107. Write type of asexual reproduction?
Describe any one of them.
108. Describe sexual reproduction in human.
109. Explain any method of population control.
110. Explain menstruation cycle in female.
111. Describe embryo development in Human being.
112. what is ~~propagation~~ vegetative propagation? Explain any one artificial vegetative propagation.
113. → Describe in brief intensive step taken to the prevention spreading of AIDS.
114. Discuss structure of chromosome.
115. Give information about genes.
116. Give information about components of nucleotide.
117. Describe types of chromosomes.

- 118. Write short note on biological evolution?
- 119. Explain evidence of comparative embryology
- 120. Write short note of Acid rain
- 121. Give sources of land pollution and discuss their effect.
- 122. Describe sewage treatment.
- 123. Explain bio magnification.
- 124. Describe type of air pollution.
- 125. Give environmental protection acts for conservation of environment.
- 126. Describe interrelationship between population environment and development.



SCIENCE AND TECHNOLOGY

Section - E

Total Marks: 25

1. Explain with diagrams the concept of carbon nanotubes.
2. Explain how nanotechnology plays an important role in healthcare and security?
3. What is light? Explain nature of light.
4. Explain reflection of light by plane mirror.
5. Derive for concave mirror formula $\frac{1}{u} + \frac{1}{v} = \frac{1}{f}$
6. Explain refraction due to rectangular slab. What is lateral shift?
7. Explain lens formula $\frac{1}{v} - \frac{1}{u} = \frac{1}{f}$.
8. What do you mean by total internal reflection?
Explain the phenomenon, "Mirage".
9. Explain principle, construction and working of compound microscope with the help of diagram.
10. Explain principle, construction and working of Astronomical telescope with the help of diagram.
11. With the help of voltaic cell flow of electric current can be obtain. Explain with the help of diagram.
12. Write an experiment to prove Ohm's law. Write Ohm's law and its formula.
13. Write equations of equivalent resistance (R) for ~~series~~ ~~and~~ parallel connection.
14. Write equations of equivalent resistance for series connection.

15. Describe the experiment showing the magnetic field lines obtain, when electric current pass through long good conductor wire. Write the ~~rule~~ of right hand thumb rule to know the direction of magnetic field.
16. Explain electromagnetic induction?
17. ~~Explain~~ Explain the principle, construction, working and uses of electric motor with the help of diagram.
18. Explain the principle, construction and working of electric generator with the help of diagram. Write its uses also.
19. Draw the diagram of domestic electric circuit and explain. What is the need of an earthing wire?
20. Write the principle, construction ~~of~~ and uses of solar concentrators.
21. Explain in detail, how the energy of flowing water is utilised to produce electricity on a large scale by hydro electric power station.
22. Explain the experimental method with diagram to obtain coaltar, coal gas and coke (charcoal) from wood.
23. ~~Write~~ Write the kinds of Biogas plant and write the construction of each kind.
24. Explain the construction of fractional distillation tower of Petroleum and also explain its working method.

25. Write the name of substance obtained by fractional distillation of Petroleum and write the property and uses of any three substance.
26. Describe an experiment to study the calorific value of wax.
27. With the help of a neat diagram describe a nuclear reactor.
28. Describe the various theories (beliefs) regarding the origin of universe.
29. Give a brief account of planet Mercury and Venus.
30. Write a short note on Akash Ganga.
31. Describe the various orbits for artificial satellites.
32. What do you mean by artificial satellite? Write eight uses of artificial satellite.
33. In India which organization ~~was developed~~ developed the space related programme? Explain the space satellite and rocket launched by this organization.
34. Describe dynamic nature of equilibrium with example and diagram.
35. Write short note: pH scale.
36. Write law of active mass and derive the mathematical equation of equilibrium constant.

37. Draw the diagram of concentration of ~~ores~~ sulphur containing ores.
38. Explain the electrolysis (electrolytic refining) method for purifying the metal.
39. Describe the method of extraction of Alumina from bauxite with equation.
40. Draw diagram and describe the 'Hall-Heroult' method of extraction of pure aluminium from alumina.
41. Explain blast furnace with the help of diagram.
42. What is polymer? Write its classification.
43. Write the modern method of industrial production of ethanol and also write its properties and uses.
44. Explain the physical and chemical properties of ammonia.
45. What is nutrition? Describe different type of nutrition in different mode of nutrition.
46. Describe the phases of photosynthesis.
47. Explain in details the different factors affecting photosynthesis.
48. Describe the digestive system in human.
49. Describe the respiratory organ of human being.
50. Describe the constitution of blood.
51. Explain the structure of human heart (with diagram).
52. Draw diagram and describe the excretory system.

in human .

53. Describe the structure of excretory unit .
54. Explain the excretion and osmoregulation in Amoeba.
55. Describe the structure of human brain .
56. Write short notes: Co-ordination in animals .
57. Write about endocrine glands and characteristics of hormones .
58. State the different methods of asexual reproduction and describe any two of them .
59. Describe different methods of artificial vegetative propagation in plants .
60. Describe with the help of diagram: the male reproductive organs .
61. Describe with the help of diagram the female reproductive organs .
62. What is menstrual cycle? Describe briefly .
63. Describe different methods of population control .
64. Describe embryo development in human being .
65. Describe the process of fertilization with example .
66. Write short notes on evidences of biological evolution .
67. Write the pointwise description of structure of DNA .
68. Write harmful effects of water pollution .
69. Describe prevention and control of water pollution .
70. Write harmful effects of air pollution .
71. Describe prevention and control of air pollution .
72. Write short notes on pollutants .