SAMPLE PAPER – 2024-26 (XI MOVING)
(Medical Entrance)

ICAD
Creating & Nurturing Talent

Duration : 3 Hours **Total Marks : 720**

Instructions :
- There will be three sections:
  Section A (PHYSICS); Section B (CHEMISTRY) and Section C (BIOLOGY).
- Section A and B will have 45 MCQs each and Section C will have 90 MCQs. (4 marks each)
- Negative marking :
  There is a negative marking of 1 mark for every incorrect answer.
- Total marks : 720
- Time duration: 180 minutes for 180 questions.
- Use **black ball point pen** only.

PHYSICS

CHOOSE THE SINGLE CORRECT OPTION:

Q.1) Name the fundamental force which holds the planets in their orbits around the sun.
(a) Gravitational force of attraction
(b) Electrostatic force of attraction
(c) Nuclear force of attraction
(d) Electrostatic force of attraction

Q.2) The weight of an object of mass 15 kg at the centre of the earth is _____
(a) 147N (b) 147kg
(c) Zero (d) 150N

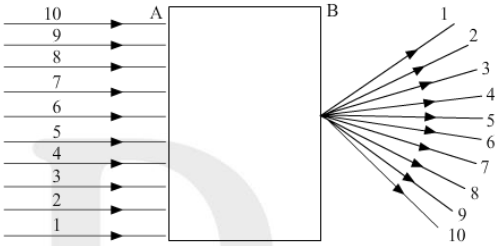
Q.3) A satellite of the earth is revolving in a circular orbit with a uniform speed v. If the gravitational force suddenly disappears, the satellite will :
(a) Continue to move with velocity v along the original orbit
(b) Fall down with increasing velocity
(c) Move with a velocity v tangentially to the original orbit
(d) Ultimately come to rest somewhere on the original orbit

Q.4) Units of Relative Density are
(a) Kg/m3
(b) Unit less
(c) Depends on the density of the substance
(d) Depend on the density of water

Q.5) Mass per unit volume of a substance is called
(a) Density (b) Relative density
(c) Specific gravity (d) None

Q.6) The period of geostationary artificial satellite is
(a) 24 hours (b) 6 hours
(c) 12 hours (d) 48 hours

Q.7) A beam of light is incident through the holes on side A and emerges out of the holes on the other face of the box as shown in the Figure. Which of the following could be inside the box?



(a) Concave lens (b) Rectangular glass slab
(c) Prism (d) Convex lens

Q.8) Which of the following statements is true?
(a) A convex lens has 4 dioptre power having a focal length 0.25 m
(b) A convex lens has –4 dioptre power having a focal length 0.25 m
(c) A concave lens has 4 dioptre power having a focal length 0.25 m
(d) A concave lens has–4 dioptre power having a focal length 0.25 m

Q.9) In hypermetropia image is formed
(a) on the retina
(b) in front of the retina
(c) behind the retina
(d) none of these

Q.10) The light which deviates most while passing through a prism
(a) red (b) violet
(c) indigo (d) yellow

Q.11) A concave mirror forms a real and enlarged image of an object if the object is placed at or between
(a) 2F (b) F
(c) F and C (d) F and P

Q.12) The splitting of light into its component colours is called:
(a) refraction (b) spectrum
(c) dispersion (d) diffraction

Q.13) The incident ray passing through the focus (F) of a mirror _____ after reflection.
(a) Passes through C
(b) Passes through F
(c) Becomes parallel to the principal axis
(d) Passes through the pole

Q.14) We can see objects because of ____
(a) Reflection (b) Refraction
(c) Transmission (d) Diffraction

Q.15) Real images formed by single convex lenses are always _____
(a) On the same side of the lens as the object
(b) Inverted
(c) Erect
(d) Smaller than the object

Q.16) Heat conduction is the property of:
(a) Non-metal (b) Metal
(c) Metalloids (d) All of these

Q.17) New technologies have been developed to provide thermal energy, without scorching your body. One of these has micro sensors that work like invisible thermostats, that measure the temperature of different parts of your body and generate thermal energy accordingly. This technology is
(a) Still in the development stage
(b) Found only in research labs
(c) An electric blanket
(d) Thermal underwear

Q.18) A technology that has replaced boiling water over an open campfire gives us a warning when the water is boiled. This technology is
(a) A micro-sensing digital boiler
(b) A solar powered water heater
(c) An electric kettle
(d) A hot water Heater

Q.19) Energy is the measure of something's ability to do work. Which of the following has the most thermal energy?
(a) A dead battery
(b) A melted slurpee
(c) A swimming pool
(d) A cup of hot chocolate

Q.20) Solids made of different metals were all heated to 100°C to determine how their volume and length would be affected. Which statement describes the most likely outcome of this experiment?
(a) All the volumes changed the same amount and the lengths remained constant
(b) All the volumes changed, but each substance was of the same length
(c) Only some of the volumes changed with their length being increased
(d) All the volumes changed and so did their lengths

Q.21) An experiment testing the effect of heat on different liquids was performed by some students. Which of the following variables would have been the manipulated variable?
(a) The amount of heat used
(b) The different types of liquids
(c) The size and type of glass tubing each liquid would rise
(d) The different levels of each of the liquids reached in the glass tubing

Q.22) The transfer of energy in a fluid is very different. The heated particles become less dense and so they rise, with the cold, the denser particles rush in to take their place. This type of thermal energy transfer creates a:
(a) Conduction current
(b) Concurrent current
(c) Radiative pathway
(d) Convection current

Q.23) Thermal energy from inside the Earth's crust can be harnessed as a useful thermal energy source. Volcanoes, hot springs and geysers are example of this type of thermal energy source. This type of thermal energy is
(a) An environmental pollutant
(b) A clean alternative to use fossil fuels
(c) Called geo-volcanic energy
(d) Used to generate fossil fuel resources

Q.24) A body P has mass 2 m and velocity 5v. Another body Q has mass 8 m and velocity 1.25 v. The ratio of momentum of P and Q is:
(a) 2:1 (b) 1:1 (c) 1:2 (d) 3:2

Q.25) 25) Two stones, A and B are thrown from the top of a tower. The stone A is thrown vertically upwards while the stone E is thrown vertically downwards with the same speed. Which of the following statements is true
(a) B reaches the ground earlier than A
(b) A reaches the ground earlier than B
(c) A and B reach the ground together
(d) None of these

Q.26) A particle experiences constant acceleration for 20 s after starting from rest. If it travels a distance S1 in the first 10 second and a distance S2 in the next 10 second, then
(a) S2 = 2S1 (b) S2=3S1
(c) S2=4S1 (d) S2=5S1

Q.27) A constant force acts perpendicular to the velocity of a particle, then
(a) acceleration is constant
(b) velocity is constant
(c) momentum will be constant
(d) kinetic energy is constant

Q.28) 28) A ball is dropped on the floor from a height of 10 m. It rebounds to a height of2.5 m. If the ball is in contact with the floor for 0.0 1 sec, then average acceleration during contact is:
(a) 2100 m/s2 (b) 1400 m/s2
(c) 700 m/s2 (d) 400 m/s2

Q.29) 29) A boat can have a speed of 2km/hr in still water the minimum time taken by the boat to cross a river of width 0.5 km flowing with a speed of 40 km/hr is
(a) 15 min (b) 20 min
(c) 3.75 min (d) none

Q.30) A stone is dropped into a lake from a tower 500 m high. The sound of the splash will be heard by a man on the tower after
(a) 21 s (b) 10 s (c) 11.5 s (d) 14 s

Q.31) Magnification produced by a rear view mirror fitted in vehicles
(a) is less than one
(b) is more than one
(c) is equal to one
(d) can be more than or less than one depending upon the position of the object in front of it

Q.32) Which of the following can make a parallel beam of light when light from a point source is incident on it?
(a) Concave mirror as well as convex lens
(b) Convex mirror as well as concave lens
(c) Two plane mirrors placed at 90° to each other
(d) Concave mirror as well as concave lens

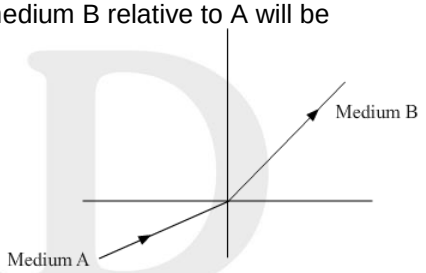
Q.33) Rays from Sun converge at a point 15 cm in front of a concave mirror. Where should an object be placed so that size of its image is equal to the size of the object?
(a) 15 cm in front of the mirror
(b) 30 cm in front of the mirror
(c) between 15 cm and 30 cm in front of the mirror
(d) more than 30 cm in front of the mirror

Q.34) A full length image of a distant tall building can definitely be seen by using
(a) a concave mirror
(b) a convex mirror
(c) a plane mirror
(d) both concave as well as plane mirror

Q.35) In torches, search lights and headlights of vehicles the bulb is placed
(a) between the pole and the focus of the reflector
(b) very near to the focus of the reflector
(c) between the focus and centre of curvature of the reflector
(d) at the centre of curvature of the reflector

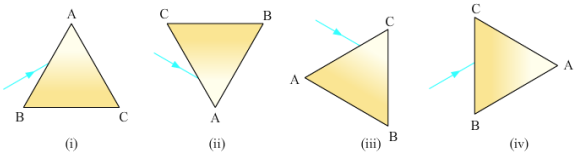
Q.36) The laws of reflection hold good for
(a) plane mirror only
(b) concave mirror only
(c) convex mirror only
(d) all mirrors irrespective of their shape

Q.37) A light ray enters from medium A to medium B as shown in Figure . The refractive index of medium B relative to A will be



(a) greater than unity
(b) less than unity
(c) equal to unity
(d) zero

Q.38) A prism ABC (with BC as base) is placed in different orientations. A narrow beam of white light is incident on the prism as shown in Figure. In which of the following cases, after dispersion, the third colour from the top corresponds to the colour of the sky?



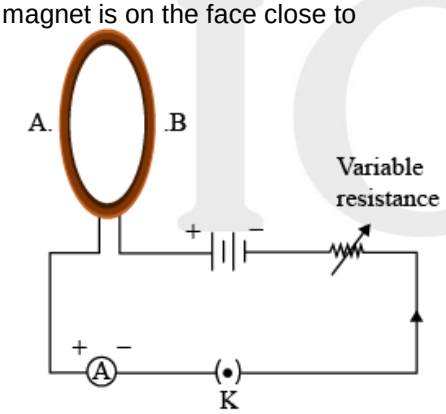
(a) (i) (b) (ii) (c) (iii) (d) (iv)

Q.39) Which of the following phenomena of light are involved in the formation of a rainbow?
(a) Reflection, refraction and dispersion
(b) Refraction, dispersion and total internal reflection
(c) Refraction, dispersion and internal reflection
(d) Dispersion, scattering and total internal reflection

Q.40) Twinkling of stars is due to atmospheric
(a) dispersion of light by water droplets
(b) refraction of light by different layers of varying refractive indices
(c) scattering of light by dust particles
(d) internal reflection of light by clouds

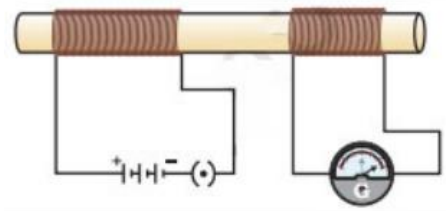
Q.41) The clear sky appears blue because
(a) blue light gets absorbed in the atmosphere
(b) ultraviolet radiations are absorbed in the atmosphere
(c) violet and blue lights get scattered more than lights of all other colours by the atmosphere
(d) light of all other colours is scattered more than the violet and blue colour lights by the atmosphere

Q.42) A circular loop placed in a plane perpendicular to the plane of paper carries a current when the key is ON. The current as seen from points A and B (in the plane of paper and on the axis of the coil) is anti clockwise and clockwise respectively. The magnetic field lines point from B to A. The N-pole of the resultant magnet is on the face close to



(a) A
(b) B
(c) A if the current is small, and B if the current is large
(d) B if the current is small and A if the current is large

Q.43) In the arrangement shown in the figure there are two coils wound on a non-conducting cylindrical rod. Initially the key is not inserted. Then the key is inserted and later removed. Then



(a) the deflection in the galvanometer remains zero throughout
(b) there is a momentary deflection in the galvanometer but it dies out shortly and there is no effect when the key is removed
(c) there are momentary galvanometer deflections that die out shortly; the deflections are in the same direction
(d) there are momentary galvanometer deflections that die out shortly; the deflections are in opposite directions

Q.44) In a hydro power plant
(a) Potential energy possessed by stored water is converted into electricity
(b) Kinetic energy possessed by stored water is converted into potential energy
(c) Electricity is extracted from water
(d) Water is converted into steam to produce electricity

Q.45) Which one of the following forms of energy leads to least environmental pollution in the process of its harnessing and utilisation?
(a) Nuclear energy
(b) Thermal energy
(c) Solar energy
(d) Geothermal energy

❐❐❐

CHEMISTRY

CHOOSE THE SINGLE CORRECT OPTION:

Q.46) When SO_3 is dissolved in water the acid forms is
(a) H_2SO_3 (b) H_2SO_4
(c) $H_2S_2O_7$ (d) None of these

Q.47) Acid used in car batteries is
(a) HCl (b) H_2SO_4
(c) HNO_3 (d) CH_3COOH

Q.48) Identify the weak base among the following
(a) KOH (b) NaOH
(c) Cs(OH) (d) $Ca(OH)_2$

Q.49) Micelles are ____.
(a) soap molecules in clean water
(b) drops of oil or dirt that surrounds the molecule
(c) a tadpole shaped fatty acid
(d) cluster of soap molecules surrounding the dirt particle

Q.50) Which of the following are the characteristics of isotopes of an element?
I. Isotopes of an element have same atomic masses.
II. Isotopes of an element have same atomic number.
III. Isotopes of an element show same physical properties.
IV. Isotopes of an element show same chemical properties.
(a) (i), (iii) and (iv) (b) (ii), (iii) and (iv)
(c) (ii) and (iii) (d) (ii) and (iv)

Q.51) Arrange the following elements in the order of their decreasing metallic character: Na, Si, Cl, Mg, Al
(a) Cl > Si > Al> Mg > Na
(b) Na > Mg > Al > Si > Cl
(c) Na > Al > Mg > Cl > Si
(d) Al > Na > Si > Ca > Mg

Q.52) Arrange the following elements in the order of their increasing non-metallic character: Li, O, C, Be, F
(a) F < O< C < Be < Li
(b) Li < Be < C < 0< F
(c) F < O< C < Be < Li
(d) F < O< Be < C < Li

Q.53) Which of the following elements will form an acidic oxide?
(a) An element with atomic number 7
(b) An element with atomic number 3
(c) An element with atomic number 12
(d) An element with atomic number 19

Q.54) The element with atomic number 14 is hard and forms acidic oxide and a covalent halide. To which of the following categories does the element be?
(a) Metal (b) Metalloid
(c) Non-metal (d) Left-hand side element

Q.55) I-propanol and 2-propanol are:
(a) chain isomers
(b) position isomers
(c) functional isomers
(d) homologues

Q.56) Diamond is not a good conductor of electricity because
(a) it is very hard
(b) its structure is very compact
(c) it is not water soluble
(d) is has no free electrons to conduct electric current

Q.57) Which of the following compound contain single covalent bond?
(a) Oxygen (b) Nitrogen
(c) Methane (d) Carbon dioxide

Q.58) Covalent bond between atoms is formed by
(a) loss of electrons
(b) gain of electrons
(c) sharing of electrons
(d) loss and gain of electrons both

Q.59) Select the alkyne form the following
(a) C_4H_8 (b) C_5H_8
(c) C_7H_{19} (d) None of these

Q.60) The first compound to be prepared in the laboratory was
(a) methane (b) ethyl alcohol
(c) acetic acid (d) urea

Q.61) The IUPAC name of
$CH_3 — C(CH_3)(OH)CH_2 — CH(CH_3)CH_3$ is
(a) 2,4-dimethyl pent;n -2-ol
(b) 2,4- dimethyl pentan -4-ol
(c) 2,2- dimethyl butane
(d) butanol -2-one

Q.62) Ethanol on complete oxidation gives
(a) CO_2 and water (b) acetaldehyde
(c) acetic acid (d) acetone

Q.63) Aqueous solutions of which of the following salts will change the colour of blue litmus to red?
(i) KNO_3 (ii) $(NH_4)_2SO_4$
(iii) Na_2CO_3 (iv) NH_4Cl
(a) (i) only· (b) (ii) and (iii) only
(c) (ii) and (iv) only (d) (i) (ii) and (iv)

Q.64) Anhydrous $CuSO_4$ is used for the detection of water vapour. Which property of anhydrous $CuSO_4$ is exploited for the above use?
(a) Anhydrous $CuSO_4$ changes from solid state to liquid state in presence of water vapour.
(b) Colourless anhydrous $CuSO_4$ changes to blue coloured hydrated $CuSO_4$
(c) Blue coloured anhydrous $CuSO_4$ changes to colourless hydrated $CuSO_4$
(d) None of the above

Q.65) Formula of gypsum is ____
(a) $CaSO_4 \cdot 1/2H_2O$ (b) $CaSO_4 \cdot 2H_2O$
(c) $MgSO_4 \cdot 2H_2O$ (d) $Na_2SO_4 \cdot 7H_2O$

Q.66) Which of the following is an alkali?
(a) $Cu(OH)_2$ (b) $Ca(OH)_2$
(c) KOH (d) $Zn(OH)_2$

Q.67) A strong acid in solution is _____
(a) mostly molecules
(b) mostly ions
(c) both molecules and ions
(d) mostly water

Q.68) An acid is _____
(a) a proton donor
(b) a proton acceptor
(c) an electron donor
(d) an electron acceptor

Q.69) Which is a soluble base in water?
(a) $Fe(OH)_3$ (b $Cu(OH)_2$
(c) $Zn(OH)_2$ (d) NaOH

Q.70) Air is regarded as a
(a) compound (b) mixture
(c) element (d) electrolyte

Q.71) Which of the following statement is not true about suspension?
(a) The particles of suspension can be separated from solvent by the process of filtration.
(b) When the suspension is kept undisturbed the particles of suspension settle down.
(c) A suspension is homogeneous in nature.
(d) Scattering of light take place in suspension

Q.72) Soap solution is an example of –
(a) suspension (b) true solution
(c) colloidal solution (d) none of these

Q.73) Which of the following is an example of gel?
(a) Coloured gem (b) jelly
(c) Smoke (d) Shaving cream

Q.74) Which of the following will show Tyndall effect
(a) Starch solution
(b) Sodium chloride solution
(c) Copper sulphate solution
(d) Sugar solution

Q.75) Which of the following substances when mixed with sand cannot be separated by sublimation?
(a) NaCl (b) NH4Cl
(c) Camphor (d) Iodine

Q.76) Mixture of sand and camphor can be purified by
(a) distillation (b) filtration
(c) sedimentation (d) sublimation

Q.77) A mixture of ammonium chloride and sodium chloride can be separated by
(a) chromatography (b) hand picking
(c) by sublimation (d) centrifugation

Q.78) Which of the following is not a chemical change?
(a) Rusting of iron (b) Cooking of food
(c) Freezing of water (d) Digestion of food

Q.79) In a chemical reaction, the total mass of the reactants is equal to the total mass of the products. This statement represents which law of chemical reactions?
(a) Law of Conservation of Mass
(b) Law of Multiple Proportions
(c) Law of Definite Proportions
(d) Law of Chemical Equilibrium

Q.80) Substances that can donate a proton (H^+) are called:
(a) Acids (b) Bases
(c) Salts (d) Neutrals

Q.81) The pH scale measures the:
(a) Color of a solution
(b) Temperature of a solution
(c) Acidity or alkalinity of a solution
(d) Density of a solution

Q.82) A neutralization reaction between an acid and a base produces:
(a) Water and a salt
(b) Oxygen gas
(c) Carbon dioxide gas
(d) Hydrogen gas

Q.83) Which of the following metals is the most reactive and will react vigorously with water?
(a) Copper (b) Silver
(c) Sodium (d) Gold

Q.84) Non-metals generally have properties that are the opposite of metals. Which of the following is a property of non-metals?
a) Good conductor of electricity
(b) Malleable and ductile
(c) Brittle and non-sonorous
(d) Shiny and lustrous

Q.85) The process of converting an ore into a metal with the help of heat and reducing agents is called:
(a) Smelting (b) Electrolysis
(c) Refining (d) Alloying

Q.86) Organic compounds are mainly composed of:
(a) Oxygen and carbon
(b) Hydrogen and oxygen
(c) Carbon and hydrogen
(d) Carbon and nitrogen

Q.87) Which type of hydrocarbons have double bonds between carbon atoms in their structure?
(a) Alkanes
(b) Alkenes
(c) Alkynes
(d) Aromatic hydrocarbons

Q.88) Ethanol is an example of which type of organic compound?
(a) Alkane (b) Alkene
(c) Alcohol (d) Aldehyde

Q.89) Which organic compound is responsible for the characteristic odor of fruits like bananas and apples?
(a) Ethanol (b) Methane
(c) Acetic acid (d) Ethanoic acid

Q.90) Which metal is known for its use in making aircraft due to its lightness and strength?
(a) Copper (b) Iron
(c) Aluminum (d) Lead

❐❐❐

BIOLOGY

CHOOSE THE SINGLE CORRECT OPTION:

Q.91) A person has developed interferon in his body. He seems to carry infection of
(a) Tetanus(b) Malaria(c) Measles(d) Typhoid

Q.92) Typhoid is an infectious disease caused by
(a) virus(b) bacteria(c) Protozoan(d) Worm

Q.93) Elephantiasis is a disease that results in
(a) long-term effects on health
(b) short-term effects on health
(c) no effect on health
(d) occasional bad effects on health

Q.94) Haemophilia is a
(a) chronic disease
(b) congenital disease
(c) acute disease
(d) deficiency disease

Q.95) The interval between infection and appearance of a disease is known as
(a) inoculation (b) penetration
(c) infection (d) incubation period

Q.96) Which one of the following is not a method of asexual reproduction?
(a) Sporulation (b) Gametogenesis
(c) Apomixis (d) Parthenogenesis

Q.97) The stamens are leaves modified for the production of
(a) Microspores (b) Megaspores
(c) Ovules (d) Seed

Q.98) The sepals and petals are
(a) Reproductive part of flower
(b) Non-reproductive part of flower
(c) Part of gametophyte
(d) Both A & C

Q.99) The stigma, the style and the ovary are contained in the
(a) Petals (b) Seed
(c) Carpel (d) Stamen

Q.100) Which type of reproduction found in protozoa?
(a) Binary fission (b) Budding
(c) Spore formation (d) Fragmentation

Q.101) Which are the two types of tissues?
(a) Meristematic and permanent
(b) Meristematic and temporary
(c) Meristems and temporary
(d) None of the above

Q.102) Parenchyma is a type of _____
(a) Complex tissue (b) Simple tissue
(c) Xylem (d) Phloem

Q.103) Phloem in the plants performs the function of _____
(a) Conduction of food
(b) Conduction of water
(c) Providing support
(d) Photosynthesis

Q.104) Fluid part of blood after removal of corpuscles is _____
(a) Plasma (b) Lymph
(c) Serum (d) Vaccine

Q.105) Tendon is a structure which connects _____
(a) A bone with another bone
(b) A muscle with a bone
(c) A nerve with a muscle
(d) A muscle with a muscle

Q.106) Which of the following movements in plants is NOT related to changes in auxin levels?
(a) Nyctinastic leaf movements
(b) Movement of roots towards soil
(c) Movement of sunflower tracking the direction of sun
(d) Movement of shoot towards light

Q.107) Which of the following effects of auxins is of wide application
(a) Induction of fruit development
(b) Induction of root initiation
(c) Prevention of abscission
(d) All of the above

Q.108) Phytohormone term was coined by
(a) Gregory and Purvis (b) F.W. Went
(c) Thimann (d) L.J. Audus

Q.109) The two systems that regulate the activities of other systems of an animal are
(a) nervous system and muscular system
(b) endocrine system and respiratory system
(c) nervous system and endocrine system
(d) muscular system and sense organs

Q.110) At most of the synapses
(a) an electric current jumps a gap
(b) there is contact between two neurons
(c) heat is produced
(d) neurohormones are released

Q.111) Respiration is the process by which organisms:
(a) Take in and release oxygen
(b) Take in food
(c) Release energy from food
(d) Take in carbon dioxide

Q.112) Which of the following substances is a waste product of respiration in humans?
(a) Glucose (b) Carbon dioxide
(c) Oxygen (d) Water

Q.113) The basic unit of the nervous system is the:
(a) Neuron (b) Hormone
(c) Muscle cell (d) Blood cell

Q.114) Which part of the brain is responsible for controlling vital functions such as breathing and heart rate?
(a) Cerebrum
(b) Cerebellum
(c) Medulla oblongata
(d) Hypothalamus

Q.115) A rapid, involuntary, and automatic response to a stimulus is known as a:
(a) Reflex action
(b) Voluntary action
(c) Hormonal response
(d) Sensory perception

Q.116) Asexual reproduction involves:
(a) The fusion of gametes
(b) The formation of spores
(c) The involvement of only one parent
(d) The production of offspring with genetic variation

Q.117) The passing of traits from parents to offspring is known as:
(a) Inheritance (b) Evolution
(c) Heredity (d) Mutation

Q.118) Who is known as the "Father of Modern Genetics" and formulated the laws of inheritance?
(a) Charles Darwin
(b) Gregor Mendel
(c) Thomas Hunt Morgan
(d) Alfred Russel Wallace

Q.119) The process by which organisms adapt to their environment over generations is called:
(a) Natural selection
(b) Genetic engineering
(c) Artificial selection
(d) Mutation

Q.120) Which of the following is an example of a biotic component of an ecosystem?
(a) Air (b) Water (c) Plants (d) Soil

Q.121) Which among the following is not the function of testes at puberty?
(i) formation of germ cells
(ii) secretion of testosterone
(iii) development of placenta
(iv) secretion of estrogen
(a) (i) and (ii) (b) (ii) and (iii)
(c) (iii) and (iv) (d) (i) and (iv)

Q.122) The correct sequence of organs in the male reproductive system for transport of sperms is
(a) testis → vasdeferens → urethra
(b) testis → ureter → urethra
(c) testis → urethra → ureter
(d) testis → vasdeferens → ureter

Q.123) Which among the following diseases is not sexually transmitted?
(a) Syphilis (b) Hepatitis
(c) HIV – AIDS (d) Gonorrhoea

Q.124) Which of the following is an example of a homologous structure?
(a) The wings of a bat and the wings of a bird
(b) The eyes of a human and the eyes of a fish
(c) The legs of a cat and the legs of a lizard
(d) The trunk of an elephant and the trunk of a tree

Q.125) A cross between a tall plant (TT) and short pea plant (tt) resulted in progeny that were all tall plants because
(a) tallness is the dominant trait
(b) shortness is the dominant trait
(c) tallness is the recessive trait
(d) height of pea plant is not governed by gene 'T' or 't'

Q.126) Which of the following statement is incorrect?
(a) For every hormone there is a gene.
(b) For every protein there is a gene.
(c) For production of every enzyme there is a gene.
(d) For every molecule of fat there is a gene

Q.127) If a round, green seeded pea plant (RR yy) is crossed with wrinkled, yellow seeded pea plant, (rr YY) the seeds produced in F1 generation are
(a) round and yellow
(b) round and green
(c) wrinkled and green
(d) wrinkled and yellow

Q.128) In human males all the chromosomes are paired perfectly except one. This/these unpaired chromosome is/are
(i) large chromosome
(ii) small chromosome
(iii) Y-chromosome
(iv) X-chromosome
(a) (i) and (ii) (b) (iii) only
(c) (iii) and (iv) (d) (ii) and (iv)

Q.129) The maleness of a child is determined by
(a) the X chromosome in the zygote
(b) the Y chromosome in zygote
(c) the cytoplasm of germ cell which determines the sex
(d) sex is determined by chance

Q.130) A zygote which has an X-chromosome inherited from the father will develop into a
(a) boy
(b) girl
(c) X- chromosome does not determine the sex of a child
(d) either boy or girl

Q.131) Select the incorrect statement
(a) Frequency of certain genes in a population change over several generations resulting in evolution
(b) Reduction in weight of the organism due to starvation is genetically controlled
(c) Low weight parents can have heavy weight progeny
(d) Traits which are not inherited over generations do not cause evolution

Q.132) New species may be formed if
(i) DNA undergoes significant changes in germ cells
(ii) chromosome number changes in the gamete
(iii) there is no change in the genetic material
(iv) mating does not take place
(a) (i) and (ii) (b) (i) and (iii)
(c) (ii), (iii) and (iv) (d) (i), (ii) and (iii)

Q.133) Which part of the brain is responsible for higher mental functions such as thinking and reasoning?
(a) Cerebellum (b) Medulla oblongata
(c) Cerebrum (d) Hypothalamus

Q.134) A basket of vegetables contains carrot, potato, radish and tomato.
Which of them represent the correct homologous structures?
(a) Carrot and potato
(b) Carrot and tomato
(c) Radish and carrot
(d) Radish and potato

Q.135) Select the correct statement.
(a) Tendril of a pea plant and phylloclade of Opuntia are homologous.
(b) Tendril of a pea plant and phylloclade of Opuntia are analogous.
(c) Wings of birds and limbs of lizards are analogous.
(d) Wings of birds and wings of bat are homologous.

Q.136) If the fossil of an organism is found in the deeper layers of earth, then we can predict that
(a) the extinction of organism has occurred recently
(b) the extinction of organism has occurred thousands of years ago
(c) the fossil position in the layers of earth is not related to its time of extinction
(d) time of extinction cannot be determined

Q.137) Which of the following statements is not true with respect to variation?
(a) All variations in a species have equal chance of survival
(b) Change in genetic composition results in variation
(c) Selection of variants by environmental factors forms the basis of evolutionary processes.
(d) Variation is minimum in asexual reproduction

Q.138) A trait in an organism is influenced by
(a) paternal DNA only
(b) maternal DNA only
(c) both maternal and paternal DNA
(d) neither by paternal nor by maternal DNA

Q.139) According to the evolutionary theory, formation of a new species is generally due to
(a) sudden creation by nature
(b) accumulation of variations over several generations
(c) clones formed during asexual reproduction
(d) movement of individuals from one habitat to another

Q.140) From the list given below, select the character which can be acquired but not inherited
(a) colour of eye (b) colour of skin
(c) size of body (d) nature of hair

Q.141) The two versions of a trait (character) which are brought in by the male and female gametes are situated on
(a) copies of the same chromosome
(b) two different chromosomes
(c) sex chromosomes
(d) any chromosome

Q.142) Select the statements that describe characteristics of genes
(i) genes are specific sequence of bases in a DNA molecule
(ii) a gene does not code for proteins
(iii) in individuals of a given species, a specific gene is located on a particular chromosome
(iv) each chromosome has only one gene
(a) (i) and (ii) (b) (i) and (iii)
(c) (i) and (iv) (d) (ii) and (iv)

Q.143) Which chemical messenger is responsible for transmitting signals between nerve cells?
(a) Hormones (b) Neurotransmitters
(c) Enzymes (d) Antibodies

Q.144) The number of pair (s) of sex chromosomes in the zygote of humans is
(a) one (b) two
(c) three (d) four

Q.145) The theory of evolution of species by natural selection was given by
(a) Mendel (b) Darwin
(c) Morgan (d) Lamarck

Q.146) Some dinosaurs had feathers although they could not fly but birds have feathers that help them to fly. In the context of evolution this means that
(a) reptiles have evolved from birds
(b) there is no evolutionary connection between reptiles and birds
(c) feathers are homologous structures in both the organisms
(d) birds have evolved from reptiles

Q.147) Which one of the following is an artificial ecosystem?
(a) Pond (b) Crop field
(c) Lake (d) Forest

Q.148) In a food chain, the third trophic level is always occupied by
(a) carnivores (b) herbivores
(c) decomposers (d) producers

Q.149) An ecosystem includes
(a) all living organisms
(b) non-living objects
(c) both living organisms and non-living objects
(d) sometimes living organisms and sometimes non-living objects

Q.150) In the given food chain, suppose the amount of energy at the fourth trophic level is 5 kJ, what will be the energy available at the producer level?
Grass → Grasshopper → Frog → Snake → Hawk
(a) 5 kJ (b) 50 kJ
(c) 500 kJ (d) 5000 kJ

Q.151) Accumulation of non-biodegradable pesticides in the food chain in increasing amount at each higher trophic level is known as
(a) eutrophication (b) pollution
(c) biomagnification (d) accumulation

Q.152) Depletion of ozone is mainly due to
(a) chlorofluorocarbon compounds
(b) carbon monoxide
(c) methane
(d) pesticides

Q.153) Organisms which synthesise carbohydrates from inorganic compounds using radiant energy are called
(a) decomposers (b) producers
(c) herbivores (d) carnivores

Q.154) In an ecosystem, the 10% of energy available for transfer from one trophic level to the next is in the form of
(a) heat energy (b) light energy
(c) chemical energy (d) mechanical energy

Q.155) Organisms of a higher trophic level which feed on several types of organisms belonging to a lower trophic level constitute the
(a) food web (b) ecological pyramid
(c) ecosystem (d) food chain

Q.156) Flow of energy in an ecosystem is always
(a) unidirectional (b) bidirectional
(c) multi directional (d) no specific direction

Q.157) Excessive exposure of humans to UV-rays results in
(i) damage to immune system
(ii) damage to lungs
(iii) skin cancer
(iv) peptic ulcers
(a) (i) and (ii) (b) (ii) and (iv)
(c) (i) and (iii) (d) (iii) and (iv)

Q.158) In the following groups of materials, which group(s) contains only non-biodegradable items?
(i) Wood, paper, leather
(ii) Polythene, detergent, PVC
(iii) Plastic, detergent, grass
(iv) Plastic, bakelite, DDT
(a) (iii) (b) (iv)
(c) (i) and (iii) (d) (ii) and (iv)

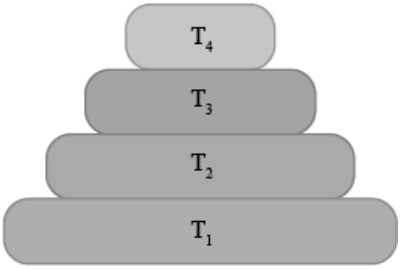
Q.159) Which of the following limits the number of trophic levels in a food chain?
(a) Decrease in energy at higher trophic levels
(b) Sufficient food supply
(c) Polluted air
(d) Water

Q.160) Which of the statement is incorrect?
(a) All green plants and blue green algae are producers.
(b) Green plants get their food from organic compounds.
(c) Producers prepare their own food from inorganic compounds.
(d) Plants convert solar energy into chemical energy.

Q.161) Which group of organisms are not constituents of a food chain?
(i) Grass, lion, rabbit, wolf
(ii) Plankton, man, fish, grasshopper
(iii) Wolf, grass, snake, tiger
(iv) Frog, snake, eagle, grass, grasshopper
(a) (i) and (iii) (b) (iii) and (iv)
(c) (ii) and (iii) (d) (i) and (iv)

Q.162) The percentage of solar radiation absorbed by all the green plants for the process of photosynthesis is about
(a) 1 % (b) 5 %
(c) 8 % (d) 10 %

Q.163) In the given figure the various trophic levels are shown in a pyramid. At which trophic level is maximum energy available?



(a) T4 (b) T2 (c) T1 (d) T3

Q.164) What will happen if deer is missing in the food chain given below?
Grass → Deer → Tiger
(a) The population of tiger increases
(b) The population of grass decreases
(c) Tiger will start eating grass
(d) The population of tiger decreases and the population of grass increases

Q.165) The decomposers in an ecosystem
(a) convert inorganic material, to simpler forms
(b) convert organic material to inorganic forms
(c) convert inorganic materials into organic compounds
(d) do not breakdown organic compounds

Q.166) If a grasshopper is eaten by a frog, then the energy transfer will be from
(a) producer to decomposer
(b) producer to primary consumer
(c) primary consumer to secondary consumer
(d) secondary consumer to primary consumer

Q.167) Disposable plastic plates should not be used because
(a) they are made of materials with light weight
(b) they are made of toxic materials
(c) they are made of biodegradable materials
(d) they are made of non-biodegradable materials

Q.168) From the list given below pick the item that is not a natural resource
(a) Soil (b) Water
(c) Electricity (d) Air

Q.169) The most rapidly dwindling natural resource in the world is
(a) water (b) forests
(c) wind (d) sunlight

Q.170) The most appropriate definition of a natural resource is that it is a substance/commodity that is
(a) present only on land
(b) a gift of nature which is very useful to mankind
(c) a man-made substance placed in nature
(d) available only in the forest

Q.171) The main cause for abundant coliform bacteria in the river Ganga is
(a) disposal of unburnt corpses into water
(b) discharge of effluents from electroplating industries
(c) washing of clothes
(d) immersion of ashes

Q.172) The pH of water sample collected from a river was found to be acidic in the range of 3.5 – 4.5, on the banks of the river were several factories that were discharging effluents into the river. The effluents of which one of the following factories is the most likely cause for lowering the pH of river water?
(a) Soap and detergent factory
(b) Lead battery manufacturing factory
(c) Plastic cup manufacturing factory
(d) Alcohol distillery

Q.173) The pH range most conducive for life of fresh water plants and animals is
(a) 6.5 – 7.5 (b) 2.0 – 3.5
(c) 3.5 – 5.0 (d) 9.0 – 10.5

Q.174) The three R's that will help us to conserve natural resources for long term use are
(a) recycle, regenerate, reuse
(b) reduce, regenerate, reuse
(c) reduce, reuse, redistribute
(d) reduce, recycle, reuse

Q.175) Among the statements given below select the ones that correctly describe the concept of sustainable development
(i) Planned growth with minimum damage to the environment
(ii) Growth irrespective of the extent of damage caused to the environment
(iii) Stopping all developmental work to conserve the environment
(iv) Growth that is acceptable to all the stakeholders
(a) (i) and (iv) (b) (ii) and (iii)
(c) (ii) and (iv) (d) (iii) only

Q.176) In our country, vast tracts of forests are cleared and a single species of plant is cultivated. This practice promotes
(a) biodiversity in the area
(b) monoculture in the area
(c) growth of natural forest
(d) preserves the natural ecosystem in the area

Q.177) A successful forest conservation strategy should involve
(a) protection of animals at the highest trophic level
(b) protection of only consumers
(c) protection of only herbivores
(d) comprehensive program to protect all the physical and biological components

Q.178) The important message conveyed by the 'Chipko Movement' is
(a) to involve the community in forest conservation efforts
(b) to ignore the community in forest conservation efforts
(c) to cut down forest trees for developmental activities
(d) government agencies have the unquestionable right to order destruction of trees in forests

Q.179) In our country, there are attempts to increase the height of several existing dams like Tehri and Almati, dams across Narmada.
Choose the correct statements among the following that are a consequence of raising the height of dams
(i) Terrestrial flora and fauna of the area is destroyed completely
(ii) Dislocation of people and domestic animals living in the area
(iii) Valuable agricultural land may be permanently lost
(iv) It will generate permanent employment for people
(a) (i) and (ii) (b) (i), (ii) and (iii)
(c) (ii) and (iv) (d) (i), (iii) and (iv)

Q.180) Expand the abbreviation GAP
(a) Governmental Agency for Pollution Control
(b) Gross Assimilation by Photosynthesis
(c) Ganga Action Plan
(d) Governmental Agency for Animal Protection

❐❐❐