

Question 1: Which of the following pairs are analogous organs?

- a) wings of a pigeon and a bat
- b) Forelimbs of a frog and a bird
- c) Forelimbs of a Rabbit and a lizard
- d) Leaves of a Pitcher plant and a Venus fly

Question 2: Which section of DNA provides information for one protein?

- a) Nucleus
- b) Chromosome
- c) Trait
- d) Gene

Question 3: Assertion(A): Smallpox and Rinderpest have been eradicated globally. Reason(R): Vaccination campaigns by WHO led to the successful eradication of these diseases.

- a) Both A and R are true, and R is the correct explanation of A
- b) Both A and R are true, but R is not the correct explanation of A
- c) A is true, but R is false
- d) A is false, but R is true

Question 4: Carcinoma arises from the

- a) Epithelial cell
- b) Bone Marrow
- c) Pigment containing cells
- d) None of the above

Question 5: What is an example of Stimulant?

- a) Lorazepam
- b) Amphetamine
- c) Oxazepam
- d) Phencyclidine

Question 6: Which of the following is an example of an acquired character, not an inherited one?

- a) Colour of eyes
- b) A bodybuilder's muscle size
- c) Texture & hair
- d) Height.

Question 7: Smallpox and Rabies diseases are caused by

- a) Virus
- b) Protozoan
- c) Bacteria
- d) Nematode

Question 8: Which of the following does Darwin's theory not include?

- a) Natural Selection
- b) Survival of the fittest
- c) Evolution through inheritance
- d) Struggle for the existence of life.

Question 9: The occurrence of two or more alleles of a gene in a population is called

- a) Polymorphism
- b) Homozygosity
- c) Heterozygosity
- d) Inbreeding

Question 10: The immune system comprises

- a) Humoral and fibrous Systems
- b) Humoral and cell mediated systems
- c) Antigens
- d) Red blood cells

Question 11: The Sun's path, as viewed from the equator, is highest on

- a) The Summer Solstice
- b) The day when Earth is closest to the Sun
- c) The winter Solstice.
- d) The spring and fall equinoxes

Question 12: Which woman astronaut has set the record for the longest single spaceflight by a woman?

- a) Peggy Whitson
- b) Jessica Meir
- c) Christina Koch
- d) Sunita Williams

Question 13: Which of the following space agencies uses a Space craft named 'Hayabusa'?

- a) National Aeronautics and space Administration (NASA)
- b) Centre national etudes spatiales (CNES)
- c) China National Space Administration (CNSA)
- d) Japan Aerospace Exploration Agency (JAXA)

Question 14: What is the Saros Cycle?

- a) The roughly one-month Cycle of Lunar phases in the sky.
- b) The annual cycle of the Seasons
- c) The roughly 18-year cycle over which the pattern of eclipses repeats
- d) The 26,000 year cycle of the Earth's precession

Question 15: Which type of galaxy has no regular shape and is rich in gas and dust?

- a) Elliptical Galaxy
- b) Lenticular Galaxies
- c) Irregular Galaxy
- d) Spiral Galaxy

Question 16: Which planet is made up of thick white and yellowish clouds of Sulfuric acid?

- a) Uranus
- b) Venus
- c) Neptune
- d) Mars

Question 17: Bhinamala is known as a birthplace of the famous astronomer?

- a) Aryabhatta
- b) Bhaskaracharya
- c) Brahmagupta
- d) Varahamihira

Question 18: Where does the origin exist on the celestial equator for measuring the longitude?

- a) Greenwich
- b) Vernal equinox
- c) The North Celestial Pole
- d) Ephemeris

Question 19: Which Solar phenomenon is responsible for disturbances in Earth's magnetic field?

- a) Sunspots
- b) Solar Flares
- c) Chromosphere heating
- d) Photospheric cooling

Question 20: Which among the following is not a Jovian planet?

- a) Mercury
- b) Neptune
- c) Jupiter
- d) Saturn

Question 21: The direction of induced current is given by

- a) Fleming's right hand rule
- b) Fleming's left hand rule
- c) Right hand thumb rule
- d) Left hand thumb rule

Question 22: Who is considered as the founder of the wave theory of light?

- a) Albert Einstein
- b) Christian Huygens
- c) Galileo Galilei
- d) Zacharias Jansen

Question 23: In a DC motor the coil in a magnet rotates maximum to about

- a) 188°
- b) 180°
- c) 90°
- d) 50°

Question 24: What is the unit of the power of a Lens?

- a) Watt
- b) Joule
- c) Diopter
- d) Newton

Question 25: A body starts from rest and covers a distance of 10 meter(m) in 2 seconds(s). It comes back to the starting point in 3 seconds. What is the average velocity of the body?

- a) 5 m/s
- b) 0 m/s
- c) 20 m/s
- d) 4 m/s

Question 26: Magnetic field Lines around a straight conductor forms a pattern of

- a) Concentric circles
- b) Concentric ellipse
- c) Straight line
- d) Square shape

Question 27: The insulation colour of earth wire is

- a) Blue
- b) Red
- c) Green
- d) White

Question 28: The Longest wavelength of light that can initiate photo electric effect in the metal of work function 9eV is

- a) $1.37 \times 10^{-7}\text{m}$
- b) $1.5 \times 10^{-7}\text{m}$
- c) $3.7 \times 10^{-7}\text{m}$
- d) $4 \times 10^{-7}\text{m}$

Question 29: To correct the defect of Myopia, a person should use a

- a) Convex Lens
- b) Concave Lens
- c) Bifocal lens
- d) Cylindrical lens

Question 30: What is the velocity of light in a diamond, if the Refractive index of diamond with Respect to vacuum is 2.5?

- a) $5 \times 10^8 \text{ m/s}$
- b) $1.2 \times 10^8 \text{ m/s}$
- c) $1.2 \times 10^{10} \text{ m/s}$
- d) $2.5 \times 10^8 \text{ m/s}$

Question 31: What is the main significance of Sustainable development?

- a) To exploit the available resources for rapid improvement
- b) To preserve natural resources for the needs of Future generations
- c) To increase the cost of available natural resources
- d) To increase the reservoirs of natural resources

Question 32: The top two leading Tin producing countries in the world are

- a) Malaysia and Russia
- b) Peru and Bolivia
- c) Bolivia, Brazil
- d) China and Indonesia

Question 33: Which of the following is a method of wildlife Conservation?

- a) Deforestation
- b) Overhunting
- c) National park
- d) Poaching

Question 34: The Indian Copper Complex (ICC) is located in the state of

- a) Jharkhand
- b) Telangana
- c) Maharashtra
- d) Rajasthan

Question 35: While generating Ocean thermal energy, which of the following types of liquid is boiled by the warm ocean water?

- a) Volatile liquid
- b) Acidic liquid
- c) Basic Liquid
- d) Non-volatile Liquid

Question 36: What is an important copper ore mineral?

- a) Galena
- b) Cassiterite
- c) Cinnabar
- d) Chalcocite

Question 37: What is one of the primary methods suggested for conserving mineral resources?

- a) Increasing mining activities
- b) Recycling metals
- c) Importing more minerals
- d) using non-renewable energy sources

Question 38: Chipko movement was held in,

- a) Madhya Pradesh
- b) Uttarakhand
- c) Haryana
- d) Delhi

Question 39: 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) None of the above

Question 40: The most rapidly dwindling natural resource in the world is

- a) water
- b) forests
- c) wind
- d) Sunlight

Question 41: Global warming can significantly be controlled by

- a) Increasing solid waste
- b) Reducing water Wastage
- c) Burning human-generated waste
- d) Reducing fossil fuel consumption

Question 42: Galapagos finches are a good example of

- a) Extinction
- b) Hetero Chromia
- c) Island gigantism
- d) Adaptive radiation

Question 43: The headquarters of the National Biodiversity Authority is located in which city?

- a) Mumbai
- b) Delhi
- c) Bengaluru
- d) Chennai

Question 44: The wildlife Protection Act, 1972 was enacted to

- a) Promote Forestry activities
- b) Control pollution
- c) protect and conserve wildlife and their habitats
- d) Regulate mining activities.

Question 45: Which of the following animal is now extinct?

- a) Tasmanian tiger
- b) Tasmanian devil
- c) Pademelon
- d) Quoll

Question 46: Which one is not generally seen in biodiversity hotspots?

- a) Endemism
- b) Species richness
- c) Loss of diversity
- d) Lesser interspecific competition

Question 47: According to the IPCC AR6, what is the projected sea level rise by 2100 under SSP5-8.5 Scenario?

- a) ~0.5m
- b) ~1.0m
- c) ~1.5m
- d) ~2.0m

Question 48: Which construction material is recognized under green building codes for reducing embodied carbon footprint?

- a) Fly-ash PPC
- b) Bitumen
- c) Ferro cement
- d) OPC cement

Question 49: How many biogeographic zones does India have?

- a) 5
- b) 6
- c) 8
- d) 10

Question 50: Which of the following statement about NAPCC is incorrect?

- a) It consists of eight National Missions
- b) It was launched by the Government of India in 2008
- c) It focuses only on mitigation
- d) It includes mission for solar energy ,water , Conservation and Sustainable Agriculture

Question 51: Arrhenius' equation is

- a) $k = Ae^{-E_a/RT}$
- b) $k = Ae^{+E_a/RT}$
- c) $K_X A = Ae^{-E_a/RT}$
- d) $A = Ke^{-E_a/RT}$

Question 52: In a Second order reaction, the units of rate constant are:-

- a) $\text{mol}^{-2}\text{L}^2\text{s}^{-1}$
- b) $\text{mol}^{-1}\text{Ls}^{-1}$
- c) $\text{molL}^{-1}\text{s}^{-1}$
- d) s^{-1}

Question 53: An Autocatalyst is:-

- a) One which speeds up the catalyst
- b) One of the products of a reaction acts as a catalyst.
- c) One of the reactants act as catalyst.
- d) Both the reactants act as a catalyst

Question 54: Which of the following is the general formula of Diazonium Salt?

- a) $\text{RN}_2^{+\text{HSO}_2-}$
- b) $\text{RN}_2^{+}\text{X}^{-}$
- c) RN^{+}
- d) RXI

Question 55: In which of the following reactions lead tetra acetate is used to cleave a carbon-carbon bond in a glycol?

- a) Swern oxidation
- b) Criegee oxidation
- c) Jones oxidation
- d) Baeyer-villiger oxidation

Question 56: Which alkane is known as marsh gas?

- a) Methane
- b) Ethane
- c) Propane
- d) Butane

Question 57: Elements A, B and C occur as Dobereiner's triads. If the atomic mass of 'A' is 40 and that of 'C' is 137, what will be the atomic mass of 'B'?

- a) 35
- b) 120
- c) 88
- d) 74

Question 58: This Chemical fertilizer is essential for better Rhizobial nitrogen fixation.

- a) Calcium
- b) Potassium
- c) Sodium
- d) Phosphorus

Question 59: Acid rain is primarily due to

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- a) Presence of dust in air
 - b) Presence of water vapour in air
 - c) Carbon dioxide
 - d) Oxides of Sulphur and Nitrogen

Question 60: Which of the following chemicals is used to cause artificial rain?

- a) Hydrogen Bromide
- b) Silver Iodide
- c) Silver Oxide
- d) Aluminium Sulphide

ROUGH WORK

(NOT TO BE EVALUATED)

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