

1. The enzymes commonly called 'Genetic Scissors' are
 - (1) Ligases
 - (2) Lipases
 - (3) Restriction endonucleases
 - (4) Proteases
2. Choose the group that contains fungi only
 - (1) Euglena, lichen
 - (2) Yeast, mushroom
 - (3) Anabaena, Amoeba
 - (4) Paramecium, mycoplasma
3. Climbers grow towards and around a support is an example of
 - (1) Hydrotropism
 - (2) Haptotropism
 - (3) Geotropism
 - (4) Phototropism
4. Select the correct statement regarding the arrangement of aminoacids in beta (β) chain of haemoglobin
 - (1) Same in man and rat
 - (2) Same in man and chimpanzee
 - (3) Different in man and chimpanzee
 - (4) Same in man and gorilla
5. The gas responsible for ozone depletion is
 - (1) Nitrogen and argon
 - (2) Carbon dioxide
 - (3) Carbon monoxide
 - (4) Chlorofluorocarbons
6. Chromosomes are composed of
 - (1) DNA and protein
 - (2) RNA and lipids
 - (3) Ribosomes and lipids
 - (4) DNA and lipids
7. Choose the immune response of basophil.
 - (1) Engulfs and destroys the bacteria
 - (2) Produces chemical substances that destroys foreign bodies
 - (3) Dilates the blood vessels
 - (4) Produces chemical substances needed for inflammatory response
8. Decrease in the production of dopamine causes
 - (1) Parkinson's
 - (2) Meningitis
 - (3) Alzheimer's
 - (4) Epilepsy
9. The excretory organ in cockroach is
 - (1) Kidney
 - (2) Malpighian tubules
 - (3) Contractile vacuoles
 - (4) Nephridia
10. The three R's to save the environment represent
 - (1) Repeat, Reduce, Resale
 - (2) Reuse, Reduce, Resale
 - (3) Recycle, Reuse, Repeat
 - (4) Reduce, Recycle, Reuse
11. Glands are modified from of
 - (1) Epithelial tissue
 - (2) Cardiac tissue
 - (3) Muscular tissue
 - (4) Connective tissue
12. Movement of water molecules from a region of its higher concentration to a region of its lower concentration through a semi permeable membrane is called
 - (1) Plasmolysis
 - (2) Endocytosis
 - (3) Osmosis
 - (4) Diffusion
13. Which of the following statement is correct about tendons?
 - (1) Connect bones to bones
 - (2) Connect bones to muscles
 - (3) Smoothen bone surfaces
 - (4) Fibrous tissue with high flexibility
14. Select the process that occurs in dark reaction.
 - (1) Light energy is converted into chemical energy
 - (2) Water splits into hydrogen and oxygen
 - (3) Hydrogen is added to carbon dioxide
 - (4) Oxygen is evolved
15. Which of the following statements DO NOT match with the postulates of Bohr's model of atom?
 - (a) Electrons are revolving around the nucleus in specified paths called orbits/shells.
 - (b) Each shell is associated with definite amount of energy.
 - (c) Electron, while revolving through a particular shell can increases or decreases its energy.
 - (d) Energy of the shells decreases as their distance from nucleus increases.

Select the correct alternative

 - (1) (c) and (d)
 - (2) (b) and (c)
 - (3) (a) and (c)
 - (4) (b) and (d)

- 16.** Which of the following statements are NOT CORRECT?
- (1) Isobars are atoms of same elements
 - (2) Isotopes are atoms of different elements
 - (3) Isotones are atoms of same elements
 - (4) Isotones are atoms of different elements
- 17.** Which of the following represents the sequence in which the given compounds are arranged in the increasing order of the electronegative difference of their component elements?
- CH₄, NaCl, CO, Na₂O, MgCl₂
- (1) CH₄ < MgCl₂ < CO < NaCl < Na₂O
 - (2) Na₂O < CO < MgCl₂ < NaCl < CH₄
 - (3) MgCl₂ < Na₂O < CO < CH₄ < NaCl
 - (4) CH₄ < CO < MgCl₂ < NaCl < Na₂O
- 18.** Water is a compound with relatively low molecular mass (18g mol⁻¹). But it exists as a liquid at room temperature. This is because
- (1) Water molecules have angular geometry.
 - (2) Electronegativity difference between hydrogen and oxygen is less.
 - (3) Hydrogen bonding is present between hydrogen and oxygen.
 - (4) Water is a universal solvent.
- 19.** Which of the following represents pairs of metalloids?
- | | |
|---------------|---------------|
| (a) Si and Sb | (b) Pb and Sb |
| (c) Ru and Rh | (d) Ge and As |
- (1) (b) and (d)
 - (2) (a) and (c)
 - (3) (b) and (c)
 - (4) (a) and (d)
- 20.** Which of the following reactions requires the highest temperature to occur?
- (1) N₂ + O₂ → 2NO
 - (2) 2NO + O₂ → 2NO₂
 - (3) NH₄NO₂ → N₂ + 2H₂O
 - (4) 4NO₂ + 2H₂O + O₂ → 4HNO₃
- 21.** The total number of electrons in 1kg glucose (C₆H₁₂O₆) is [Molecular mass of glucose is 180 u]
- | | |
|------------------------------|----------------------------|
| (1) 6.022 × 10 ²³ | (2) 1.8 × 10 ⁵ |
| (3) 3.346 × 10 ²¹ | (4) 3.2 × 10 ²⁶ |
- 22.** Which of the following are NOT CORRECT for a gaseous reversible reaction when pressure is increased?
- (a) Distance between gaseous molecules decreases
 - (b) Number of molecules per unit volume decreases
 - (c) Reaction proceeds in the direction in which there is increase in number of moles
 - (d) Reaction proceeds in the direction in which there is decrease in number of moles
- Selection the correct alternative
- | | |
|-----------------|-----------------|
| (1) (a) and (d) | (2) (b) and (d) |
| (3) (a) and (c) | (4) (b) and (c) |
- 23.** In which of the following solutions iron gets oxidized?
- | | |
|------------------------|---------------------|
| (a) Silver nitrate | (b) Zinc sulphate |
| (c) Magnesium sulphate | (d) Copper sulphate |
- (1) (b) and (d)
 - (2) (a) and (c)
 - (3) (b) and (c)
 - (4) (a) and (d)
- 24.** When the reaction Pb(NO₃)₂ → 2PbO + NO₂ + O₂ is balanced the coefficients of the reactants and products in the balanced reaction will be
- | | |
|----------------|----------------|
| (1) 4, 2, 1, 2 | (2) 2, 2, 4, 1 |
| (3) 2, 4, 1, 2 | (4) 4, 2, 2, 1 |
- 25.** What is the volume of N₂ gas formed at STP when 63g of (NH₄)₂Cr₂O₇ is thermally decomposed according to the equation given below? (Atomic mass of Cr = 52, H = 1, N = 14, O = 16)
- $$(NH_4)_2Cr_2O_7 \rightarrow N_2 + 4H_2O + Cr_2O_3$$
- | | |
|-----------|-----------|
| (1) 5.6L | (2) 11.2L |
| (3) 22.4L | (4) 44.8L |
- 26.** What is the number of s – electrons present in a chromium atom? (Atomic number of Cr – 24)
- | | | | |
|-------|-------|-------|-------|
| (1) 7 | (2) 1 | (3) 8 | (4) 5 |
|-------|-------|-------|-------|
- 27.** The two elements X and Y have 5 and 7 valence electrons respectively. What will be the most probable formula of the compound formed between them?
- | | | | |
|-----------------------------------|-----------------------------------|----------------------|---------------------|
| (1) X ₇ Y ₅ | (2) X ₅ Y ₇ | (3) X ₃ Y | (4) XY ₃ |
|-----------------------------------|-----------------------------------|----------------------|---------------------|
- 28.** The average acceleration of a body during a time interval 't' is given by the slope of its
- (1) Velocity – speed graph.
 - (2) Velocity – time graph.
 - (3) Speed – time graph.
 - (4) Velocity – displacement graph.

- 29.** An object moving at a constant speed in a circular path experiences a force which is
- (1) in the direction of motion.
 - (2) outwards and at 45° to the direction of motion.
 - (3) inwards and at right angles to the direction of motion.
 - (4) opposite to the direction of motion.
- 30.** A vehicle will accelerate as long as
- (1) air resistance is greater than the thrust.
 - (2) air resistance is greater than the inertia.
 - (3) thrust is greater than the sum of air resistance and friction.
 - (4) friction is greater than the thrust.
- 31.** Which of the following statement is correct?
The force acting on an object is equivalent to
- (1) its change in momentum.
 - (2) the impulse it receives per second.
 - (3) the energy it gains per second.
 - (4) its acceleration per meter.
- 32.** Work done by the force of gravity on a satellite of 500kg at a height of 36000km is
- (1) 0 J
 - (2) 10^{31} J
 - (3) 10^{21} J
 - (4) $10^{9.8}$ J
- 33.** Upthrust by water acting on a wooden cube of side 10 cm immersed completely in water is (density of water = 1000 kgm^{-3} and $g = 10 \text{ ms}^{-2}$)
- (1) 5 N
 - (2) 10 N
 - (3) 3 N
 - (4) 2 N
- 34.** Energy transferred to a stone of weight 10 N, falling freely from the top of a tower of 250 m height is about
- (1) 25000J
 - (2) 250000J
 - (3) 2500J
 - (4) 250J
- 35.** The factor on which the speed of sound through air doesn't depend is
- (1) Humidity
 - (2) Density
 - (3) Temperature
 - (4) Frequency of sound
- 36.** The waves that require a material medium for their propagation are called
- (1) matter waves.
 - (2) electromagnetic waves.
 - (3) carrier waves.
 - (4) mechanical waves.
- 37.** How much heat does a 40W bulb generate in 1 hour?
- (1) 144000J
 - (2) 144J
 - (3) 1.44J
 - (4) 14J
- 38.** Three bulbs are rated 40W, 60W and 100W. Which bulb will glow brightly if they are connected in series across a 220V source?
- (1) 40W
 - (2) 60W
 - (3) 100W
 - (4) All will glow equally bright
- 39.** A device which uses the phenomenon of mutual induction to change the voltage levels is
- (1) AC generator
 - (2) DC generator
 - (3) Induction coil
 - (4) Transformer
- 40.** Indian Regional Navigation Satellite System (IRNSS) has a group of _____ satellites
- (1) 3
 - (2) 5
 - (3) 7
 - (4) 10
- 41.** Using the digits 1, 2, 3, 4, 5 without repetition, 120 five digit numbers can be made. How many five digit numbers can be made using the digits 0, 1, 2, 3, 4 without repetition?
- (1) 120
 - (2) 100
 - (3) 96
 - (4) 24
- 42.** In the arithmetic sequence $\frac{3}{4}, 1\frac{1}{2}, 2\frac{1}{4}, \dots$ at which position does a perfect square appear first?
- (1) 192
 - (2) 108
 - (3) 48
 - (4) 12
- 43.** How much more is the sum of the first 40 terms of the arithmetic sequence 11, 21, 31 .. then the sum of the first 40 terms of the arithmetic sequence 12, 23, 34?
- (1) 1600
 - (2) 820
 - (3) 780
 - (4) 40
- 44.** The difference of the squares of two natural numbers is 101. What is the sum of their squares?
- (1) 5000
 - (2) 5100
 - (3) 5101
 - (4) 5102
- 45.** Each three digit number is written in a paper slip and put in a box. If one slip is drawn from it, what is the probability of its being a multiple of 9 which ends in 5?
- (1) $\frac{1}{9}$
 - (2) $\frac{1}{18}$
 - (3) $\frac{1}{90}$
 - (4) $\frac{1}{100}$

46. What number added to the polynomial $3x^2 + 5x$ gives the square of a first degree polynomial?

- (1) $\frac{25}{12}$ (2) $\frac{25}{24}$ (3) $\frac{25}{36}$ (4) $\frac{25}{48}$

47. In the polynomial $p(x) = x^2 - 10x + 2$ what number should be taken as x to get the least possible number at $p(x)$?

- (1) 10 (2) 5 (3) 0 (4) -5

48. If all real numbers are taken as x , what is the smallest number got as $|x - 1| + |x - 2| + |x - 4|$?

- (1) 1 (2) 2 (3) 3 (4) 4

49. The areas of two squares are in the ratio $a : b$ and their perimeters are in the ratio $b : 8a$. What is the ratio of their sides?

- (1) $1 : 8$ (2) $1 : 4$ (3) $1 : 2$ (4) $1 : \sqrt{2}$

50. The sum of a number and its reciprocal is 4. What is their difference?

- (1) $\sqrt{2}$ (2) $\sqrt{3}$ (3) $2\sqrt{2}$ (4) $2\sqrt{3}$

51. Which of the polygons given below cannot be drawn by joining the numbers on a clock?

- (1) Equilateral triangle
(2) Square
(3) Regular pentagon
(4) Regular hexagon

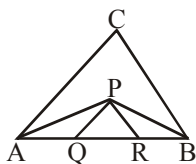
52. The angles of a cyclic quadrilateral are in one of the ratios given below. Which is it?

- (1) $1 : 2 : 3 : 4$ (2) $2 : 1 : 3 : 4$
(3) $1 : 3 : 2 : 4$ (4) $1 : 4 : 3 : 2$

53. The angles of a 15 sided polygon are in arithmetic sequence. Which of those given below is an angle of this polygon?

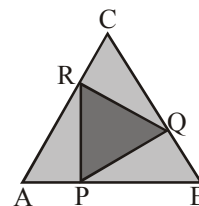
- (1) 128° (2) 130° (3) 132° (4) 156°

54. The bisectors of $\angle A$ and $\angle B$ of the triangle ABC meet at P and PQ, PR are parallel to AC and BC . The perimeter of triangle PQR is 30 centimeters. What is the length of AB ?



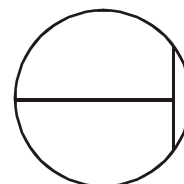
- (1) 20 cm (2) 25 cm
(3) 30 cm (4) 45 cm

55. ABC is an equilateral triangle and the points P, Q, R divided to sides AB, BC, CA in the ratio $1 : 2$. If the area of triangle PQR is 60 square centimeters, what is the area of triangle ABC ?



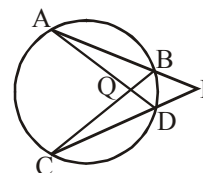
- (1) 180 (2) 150 (3) 120 (4) 90

56. In the picture, a diameter of the circle and a chord perpendicular to it are drawn. The length of the chord is 24 centimeters and it cuts the diameter in the ratio $9 : 1$. What is the diameter in centimeters?



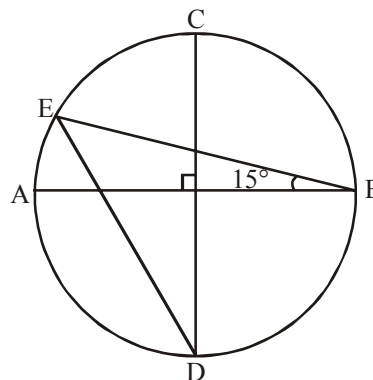
- (1) 20 (2) 30 (3) 40 (4) 60

57. In the picture, chords AB and CD of the circle are extended to meet at P and the chords AD and BC intersect at Q . The central angle of the smaller arc AC is 120° and the central angle of the smaller arc BD is 30° . What are $\angle APC$ and $\angle AQC$?



- (1) $15^\circ, 60^\circ$ (2) $45^\circ, 75^\circ$
(3) $40^\circ, 80^\circ$ (4) $50^\circ, 80^\circ$

58. In the picture, AB and CD are diameters of the circle and E is a point on the circle. The diameter of the circle is 6 centimeters. What is the length of DE ?

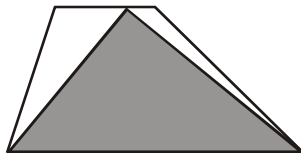


- (1) $2\sqrt{3}$ (2) $3\sqrt{3}$ (3) $4\sqrt{3}$ (4) $6\sqrt{3}$

59. An exterior angle of a regular polygon is 36° and one of its longest diagonals is 10 centimeters what is its perimeter?

- (1) $100 \sin 18^\circ$ (2) $100 \sin 36^\circ$
 (3) $100 \sin 54^\circ$ (4) $100 \sin 72^\circ$

60. In the trapezium shown below, the longer of the parallel sides is three times the shorter. If a point is marked within the trapezium, what is the probability that it would be within the shaded triangle?



- (1) $\frac{1}{2}$ (2) $\frac{2}{3}$ (3) $\frac{3}{4}$ (4) $\frac{4}{5}$

SOCIAL SCIENCE

61. The practice of land grants in India was started by

- (1) Cholas (2) Pandyas
 (3) Satavahanas (4) Guptas

62. Rearrange the following chronologically

- (a) Fall of Bastille
 (b) Oath of Tennis court
 (c) National Assembly
 (d) Execution of Louis XVI

- (1) a b c d (2) c a b d
 (3) b c a d (4) d a b c

63. Which among the following is the holy book of Buddhism?

- (1) Purvas (2) Angas
 (3) Tripitakas (4) Zend Avesta

64. Which among the following is not correctly matched?

- (1) Mrichkatikam – Sudraka
 (2) Svapnavasavadatta – Bhasa
 (3) Devichandraguptam – Bharavi
 (4) Dasakumaracharita – Dandi

65. Who among the following was the God of 'Marutam' as recorded in old Tamil literature?

- (1) Cheyon (2) Mayon
 (3) Kottavai (4) Ventan

66. Which is the correct chronological order of the following events?

- (a) Quit India Movement
 (b) Salt Satyagraha
 (c) Jallianwala Bagh Tragedy
 (d) Naval Mutiny

- (1) a, b, d, c (2) b, c, a, d
 (3) c, b, a, d (4) d, c, b, a

67. The term 'tithe' stands for

- (1) Tax levied by the Church
 (2) Tax levied by the state
 (3) Tax levied by the feudal lord
 (4) Tax on animal

68. Mahadandanayaka under the Gupat rule was taking care of

- (1) Revenue (2) Police
 (3) Judiciary (4) Army)

69. Terms 'Zat' and 'Sawar' are related to

- (1) Iqta system (2) Jagirdari system
 (3) Ryotwari system (4) Mansabdari system

70. 'The Fat Man' was

- (1) An atom bomb
 (2) A ship
 (3) A code name of the Gestapo
 (4) Name of an autobiography

71. Which among the following is connected with the idea of 'Village Autonomy'?

- (1) Shivaji (2) Krishna Deva Raya
 (3) Chola administration (4) Sultanate of Delhi

72. The film 'Grand Illusion' tells the story of

- (1) The French Revolution
 (2) The Russian Revolution
 (3) The First World War
 (4) The Second World War

73. Which among the following water ways is considered as National Water Way 1?

- (1) The Brahmaputra river between Sadiya and Dhubri
 (2) The West coast canal in Kerala
 (3) The Ganga river between Allahabad and Haldia
 (4) Buckingham canal of Andhra Pradesh

- 74.** The industries which supply their products as raw materials for other industries are called as -
- (1) Consumer good industries
 - (2) Basic industries
 - (3) Footloose industries
 - (4) Agro – bases industries
- 75.** The finest iron ore with more the 70% iron content is
- (1) Hematite (2) Magnetite
 - (3) Limonite (4) Siderite
- 76.** Manikaran in Himachal Pradesh is known for
- (1) Geo – Thermal energy project
 - (2) Thermal power project
 - (3) Nuclear energy project
 - (4) Hydrel power project
- 77.** Jhumming refers to
- (1) Primitive Subsistence framing
 - (2) Commercial framing
 - (3) Intensive subsistence farming
 - (4) Dairy farming
- 78.** Identify the terms used to denote the following and choose the correct order from those given
- (i) Species which are in the danger of extinction
 - (ii) Species with a small population
 - (iii) Species with are found only in some particular areas usually isolated by Geographical barriers
 - (iv) Species which are not found after searches in known or likely areas where they may occur
- (1) (i) Rare species (ii) Endangered species (iii) Extinct species (iv) Endemic species
 - (2) (i) Endangered species (ii) Rare species (iii) Endemic species (iv) Extinct species
 - (3) (i) Endemic species (ii) Extinct species (iii) Endangered species (iv) Rare species
 - (4) (i) Extinct species (ii) Endangered species (iii) Endemic species (iv) Rare species
- 79.** Which among the following are considered as international resource?
- (1) Forests
 - (2) Wildlife
 - (3) Oceanic resources beyond 200km form the coast of each country
 - (4) All oceanic resources
- 80.** Identify the country which is large than India, in land area, but smaller than Brazil
- (1) Canada (2) USA
 - (3) Australia (4) China
- 81.** In the Northern Plains ‘Kankar’ formations are common among
- (1) Khadar (2) Bhangar
 - (3) Bhabhar (4) Tarai
- 82.** Match the following and choose the correct combination
- | | |
|----------------------|--------------|
| (A) Malabar Coast | (i) Paradip |
| (B) North Circar | (ii) Chennai |
| (C) Coromandal Coast | (iii) Kochi |
| (D) Konkan Coast | (iv) Mumbai |
- (1) A – i B – ii C – iv D – iii
 - (2) A – i B – ii C – iii D – iv
 - (3) A – iv B – iii C – ii D – i
 - (4) A – iii B – i C – ii D – iv
- 83.** One among the following features is not related to river Godavari. Identify it
- (1) 1500 km in length
 - (2) Originates from mahabaleswar
 - (3) Know as Dakshin Ganga
 - (4) The largest peninsular river
- 84.** ‘Loo’ is a phenomenon in India during
- (1) Hot weather season
 - (2) Cold weather season
 - (3) South west monsoon season
 - (4) North east monsoon season

- 85.** Fiscal deficit may lead to
- Increased debt
 - Interest payments obligation
 - Current account deficit
 - Capital formation alone
- a, b and c are correct
 - c and d are correct
 - b and c are correct
 - only d is correct
- 86.** Mudra Yojana provides financial assistance to
- Exports only
 - Big industrialists only
 - Micro and small entrepreneurs
 - Scientific experiment
- 87.** Stand – up India scheme is promoted by
- SIDBI
 - NABARD
 - SBI
 - RBI
- 88.** Second generation economic reforms means
- Commodity market reforms
 - Reforms introduced in 1991
 - Financial sector reforms
 - Reforms in factor and input markets
- 89.** Goods and Service Tax (GST) consists of
- Central GST
 - State GST
 - Interstate GST
- a only
 - b only
 - c only
 - both a and b
- 90.** W.T.O is a
- Multinational trade negotiation system
 - Bilateral trade negotiation system
 - Forum for trade agreements between LDCs
 - Forum for trade agreements between developed countries
- 91.** Reverse Repo rate is
- Rate at which commercial banks lend to Central Bank
 - Rate at which central banks lend to commercial banks
 - Rate at which governments lends to NBFI is
 - Rate at which governments lend to farmers
- 92.** Personal income is estimated by
- Dividing national income by population
 - Adding all factor incomes
 - Adding all factor incomes and transfer payments
 - Adding all factor incomes minus transfer payments
- 93.** The system of power sharing by different groups is known as
- Social Government
 - Community government
 - Local Self Government
 - Coalition Government
- 94.** The Article of the Indian Constitution which deals with the Panchayats
- 246
 - 245
 - 244
 - 243
- 95.** The state in which 'Kittiko – Hachchiko' Movement started
- Andhra Pradesh
 - Karnataka
 - Telengana
 - Maharashtra
- 96.** Identify the secular states
- Sri Lanka and India
 - Pakistan and Ireland
 - India and Nepal
 - Britain and Afghanistan
- 97.** Which of the following is not a feature of Bureaucracy?
- Permanently appointed
 - Appointed on the basis of qualification
 - Politically not neutral
 - Skilled in their work

98. Few subjects in the Union List, State List and Concurrent List are given below. Identify the in concurrent list subjects

- | | |
|---------------------|---------------|
| (a) Currency | (b) Education |
| (c) Foreign Affairs | (d) Forest |
| (1) b and d | (2) a and d |
| (3) a and c | (4) b and c |

99. Apartheid means

- (1) Religious discrimination
- (2) Communal discrimination
- (3) Caste discrimination
- (4) Racial discrimination

100. Which part of the Constitution of India contains Fundamental Duties?

- | | |
|---------------|-----------------|
| (1) Part – II | (2) Part – III |
| (3) Part – IV | (4) Part – IV A |