WISDOM WORLD SCHOOL, KURUKSHETRA

Wisdom Scholarship-cum-Admission Test (WSAT)

for

Admission to Grade 11 (UDAAN Batch)

Date of Examination : **07/12/2025**

PATTERN OF EXAMINATION

- Multiple choice, single correct option type questions
- Negative Marking for Physics, Chemistry, Mathematics and Biology with each correct answer carrying four marks and each wrong answer carrying one negative mark to be deducted.
- No negative marking for Reasoning Test; each question carries one mark.

Sr. No.	Grade 11	Physics	Chemistry	Mathematics	Biology	Reasoning	Total Questions
1	Non Medical	20	20	40	-	20	100
2.	Medical	20	20	10	30	20	100

SYLLABUS FOR WSAT

SUBJECT	SYLLABUS
PHYSICS	Electricity, Light (Reflection and Refraction), Human eye and colorful world
CHEMISTRY	Chemical Reaction and Equation, Acid, Base and Salt, Carbon & its Compound
BIOLOGY	Life Processes, Control and Coordination, Our Environment, Heredity, How do Organisms Reproduce?
MATHEMATICS	Real Numbers, Polynomials, Pair of Linear Equations, Quadratic Equations, Arithmetic Progressions, Coordinate Geometry, Trigonometry, Heights and Distance, Area Related to Circle, Surface Area and Volumes, Statistics, Probability
MENTAL ABILITY TEST	**Verbal :** Number Series, Alphabet Test, Coding-Decoding, Blood Relation, Reasoning Puzzle **Non-Verbal :** Counting figures, Missing and Inserting Character, Dice

WISDOM SCHOLASTIC APTITUDE TEST (WSAT)

for

NEET ASPIRANTS

Sample Question Paper

PHYSICS

1. When a thin convex lens is put in contact with a thin concave lens of the same focal length *f*, then the resultant combination has focal length equal to

   (a) f/2 (b) 2f (c) 0 (d) ∞

2. A mark at the bottom of a liquid appears to rise by 0.1 m and the depth of the liquid is 1m. The refractive index of the liquid is

   (a) 1.33 (b) 9/10 (c) 10/9 (d) 1.5

3. A convex mirror of focal length *f* forms an image which is 1/*n* times the object. The distance of the object from the mirror is

   (a) $(n-1)f$ (b) $\left[\frac{n-1}{n}\right]f$ (c) $\left[\frac{n+1}{n}\right]f$ (d) $(n+1)f$

4. When a ray of light falls on a given plate at an angle of incidence 60°, the reflected and refracted rays are found to be normal to each other. The refractive index of the material of the plate is

   (a) $\frac{\sqrt{3}}{2}$ (b) 1.5 (c) 1.732 (d) 2

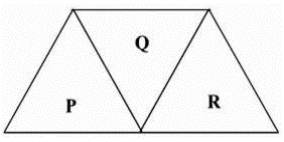
5. A vessel of depth 2d cm is half filled with a liquid of refractive index μ_1 and the upper half with a liquid of refractive index μ_2. The apparent depth of the vessel when seen perpendicularly from above is

   (a) $d\left[\frac{\mu_1\mu_2}{\mu_1+\mu_2}\right]$ (b) $d\left[\frac{1}{\mu_1}+\frac{1}{\mu_2}\right]$ (c) $2d\left[\frac{1}{\mu_1}+\frac{1}{\mu_2}\right]$ (d) $2d\left[\frac{1}{\mu_1\,\mu_2}\right]$

6. A ray of light travels from water to glass. The angle of incidence is 30°. Then the angle of refraction is $\left(\mu_g = 3/2, \mu_w = 4/3\right)$

   (a) $\sin^{-1}(8/9)$ (b) $\sin^{-1}(1/4)$ (c) $\sin^{-1}(4/9)$ (d) $\sin^{-1}(1/9)$

7. A given ray of light suffers minimum deviation in an equilateral prism P. Additional prisms Q and R of identical shape and of the same material as P are now added as shown in the figure. The ray will now suffer.



   (a) greater deviation (b) no deviation

   (c) same deviation as before (d) total internal reflection

8. A ray of light passes from a medium of refractive index μ into air. The angle of incidence is found to be half the angle of refraction. What is the angle of refraction?

   (a) $\cos^{-1}(\mu/2)$ (b) $\sin^{-1}(\mu/2)$ (c) $2\sin^{-1}(\mu/2)$ (d) $2\cos^{-1}(\mu/2)$

9. The distance between an object and a concave lens is m times the focal length of the lens. The linear magnification produced by the lens will be equal to

(a) m (b) $\frac{1}{m}$ (c) $m+1$ (d) $\frac{1}{m+1}$

10. Different objects at different distance are seen by the eye. The parameter that remains constant is

(a) the focal length of the eye lens (b) the object distance from the eye lens

(c) the radii of curvature of the eye lens (d) the image distance from the eye lens

11. A young boy can adjust the power of his eye lens between 50 D & 60 D. His far point is infinity. What is the distance of his retina from eye-lens.

(a) 1.5 cm (b) 2 cm (c) 2.5 cm (d) 3.0 cm

12. A myopic person having far point 80 cm uses spectacles of power –1.0 D. How far can he see clearly?

(a) 200 cm (b) 300 cm (c) 400 cm (d) 150 cm

13. Dispersion of light by a prism is due to the change in

(a) frequency of light (b) speed of light

(c) scattering (d) None of these

14. Which of the following changes when light goes from one medium to another medium.

(a) speed (b) wavelength (c) frequency (d) Both (a) and (b)

15. The colour of the scattered light depends on the

(a) speed of light (b) size of the scattering particles

(c) medium (d) none of the above

16. A force $F=(x+2)$ acts on a particle in x-direction where F is in newton and x in meter. Find the work done by this force during displacement from x = 1.0 m to x = 3.0 m

(a) 4 J (b) 5 J (c) 8 J (d) 6 J

17. How much work is done to stretch a spring by 10 cm if its spring constant is 500 N/m.

(a) 2.5 J (b) 5 J (c) 10 J (d) none of these

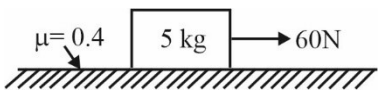
18. A person of mass 60 kg moves up the stairs on a stair case. If each stair height is 20 cm and there are total 40 stairs then the average power delivered by the person to reach the top of stair case in 60 sec? (take g = 10 m/s^2)

(a) 40 watt (b) 80 watt (c) 60 watt (d) 100 watt

19. A crane lifts 1000 kg to a height of 5m in 10 sec. Its power is (take g = 10 m/s^2)

(a) 5 kw (b) 7.5 kw (c) 10 kw (d) 15 kw

20. The kinetic energy of block after moving a distance of 2m in below diagram is



(a) 40 J (b) 60 J (c) 90 J (d) 80 J

CHEMISTRY

21. Amongst the following statements, the number of incorrect statements are
(I) The nucleus of an atom is situated at its centre
(II) There is a electrostatic force of attraction between nucleus and electron
(III) Electrons can jump from one orbit to another only when energy is supplied to it
(IV) An electron neither loses nor gains energy when it jumps from one orbit to another
(V) There are infinite number of circular orbitals around the nucleus of an atom
(VI) All circular orbits are known as stationary orbits
(a) 3 (b) 2 (c) 5 (d) 4

22. Consider the following matches:
(i) Electron → 9.1×10^{-31} kg
(ii) Proton → Discovered by Rutherford
(iii) Neutron → Approximately equal to 1 a.m.u
(iv) Electron → Named by Chadwick
(v) Proton → Named by Rutherford
(vi) Nucleus → Named by Goldstein
(vii) Neutron → Discovered by Chadwick
The total number of correct matches are
(a) 4 (b) 5 (c) 6 (d) 3

23. From amongst the following chemical species identify and isoelectronic species which is isotonic too:
(I) $^{39}_{18}Ar$ (II) $^{40}_{19}K^{+}$ (III) $^{41}_{20}Ca^{+}$ (IV) $^{42}_{20}Ca^{+}$
(a) I and II (b) II, and IV (c) III and IV (d) I, IV and III

24. Total number of incorrect electronic configurations are
(i) Be → 2, 2 (ii) Mg^{2+} → 2, 8, 2 (iii) F^{-} → 2, 8 (iv) Ca → 2, 8
(v) K^{+} → 2, 8, 8, 1 (vi) Cl^{-} → 2, 8, 8 (vii) Li^{+} → 2 (viii) P^{2-} → 2, 8, 8
(a) 6 (b) 5 (c) 3 (d) 4

25. Solid calcium oxide reacts vigorously with a compound **X**, Compound **Y** accompanied by liberation of heat. This process is called slaking of lime. **Y** dissolves in water to form its solution named **Z**. Find the total number of true statements about slaking of lime and the solution formed?
(i) It is an redox reaction
(ii) It is an exothermic reaction
(iii) The pH of the resulting solution will be more than seven
(iv) The resulting solution will be alkaline
(v) When excessive CO_2 is passed through Z, Z turns milky
(vi) Z turns milky due to formation of calcium bicarbonate
(a) 5 (b) 6 (c) 4 (d) 3

26. Three beakers labelled as A, B and C each containing 25 mL of water were taken. A small amount of NaOH, anhydrous $CuSO_4$ and NaCl were added to the beakers A, B and C respectively. It was observed that there was an increase in the temperature of the solutions contained in beakers A and B, whereas in case of beaker C, the temperature of the solution falls.

(i) In beakers A and B, exothermic process has occurred

(ii) In beakers A and B, endothermic process has occurred

(iii) In beaker C exothermic process has occurred.

(iv) In beaker C endothermic process has occurred

Total number of correct statements are

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

27. The following reaction is used for the preparation of oxygen gas in the laboratory

$$2KClO_3(s) \xrightarrow[\text{Catalyst}]{\text{Heat}} 2KCl(s) + 3O_2(g)$$

(i) It is a thermal decomposition reaction and exothermic in nature

(ii) It is a combination reaction which is irreversible

(iii) It is a decomposition reaction as well as redox reaction

(iv) It is a redox reaction which is also endothermic in nature

Total number of correct statements are

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

28. A magnesium ribbon (X) about 2cm long and a piece of coal (Y) were taken in a watch-glass by four students P, Q, R and S. On burning of these two 'X' and 'Y' by using burner following observation were recorded in the form of table as given below:

Observation by	Item	Flame's colour	Residue obtained
P	X	Dazzling white flame	Greyish Ash
	Y	Yellowish flame	Black ash
Q	X	Dazzling white flame	White powder
	Y	Sooty flame	Blackish grey ash
R	X	White flame	Grey powder
	Y	White flame	Black coke
S	X	Yellowish flame	Greyish Ash
	Y	Sooty flame	Black Ash

The correct observation was made by the student.

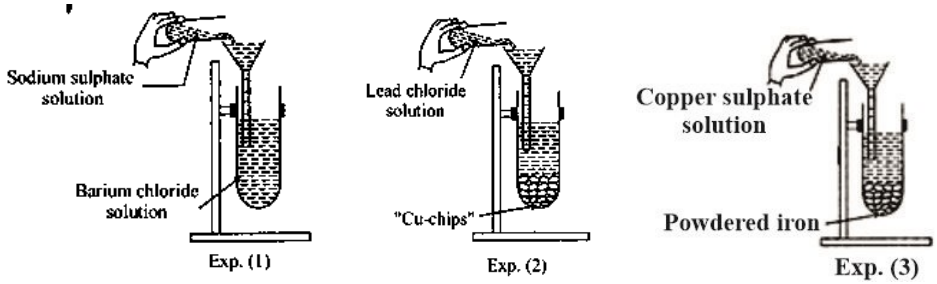
(a) Student P and Q made correct observation about X's flame

(b) Only Student Q made correct observation about Y's flame

(c) All Students made incorrect observation about X's residue

(d) Only Student P made correct observation about both X's flame and residue

29. A student from Wisdom World School performs three experiments as shown in the following diagrams.



Identify total no. of correct statements.

(1) In exp 1, double displacement reaction takes place while in exp 2 & 3 displacement reaction takes place

(2) In exp 3, the colour of solution changes from Blue to green

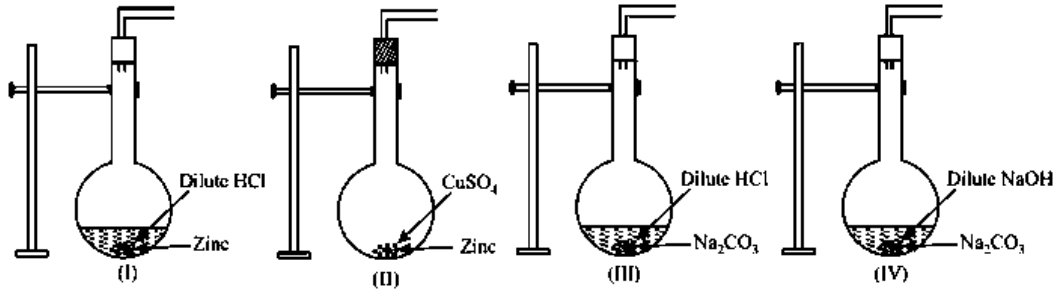
(3) In exp 1, a yellow precipitate of Barium chloride is produced

(4) In exp 2, the colour of solution changes from white to Blue

(5) The chemical reaction takes place is redox in exp 1 but non-redox in experiment 3

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

30. The setup that would result in a rapid evolution of gas would be



(a) I and II (b) I and IV (c) I and III (d) III and IV

31. Find the number of total types under which the given reaction falls

$NaOH + HCl \rightarrow NaCl + H_2O$

i) Precipitation Reaction
ii) double displacement reaction
iii) Neutralisation reaction
iv) reversible reaction
v) irreversible reaction
vii) endothermic reaction
vi) exothermic reaction
viii) Non-redox reaction

(a) 3 (b) 4 (c) 7 (d) 5

32. (i) $AgNO_3(aq) + NaCl(aq) \rightarrow P + Q$ (ii) $PCl_5(s) \xrightarrow{\Delta} R + S$

Q from the above equations is used in black and white photography and S is used for manufacturing bleaching powder.

	P	Q	R	S
(a)	AgCl	$NaNO_3$	PCl_3	Cl_2
(b)	$NaNO_3$	AgCl	Cl_2	PCl_3
(c)	AgCl	PCl_3	$NaNO_3$	Cl_2
(d)	$NaNO_3$	AgCl	PCl_3	Cl_2

33. Which of the following is the correct arrangement of the given metals in ascending order of their reactivity? Zinc, Iron, Magnesium, Sodium, Copper and nickel

(a) Zinc > Iron > Magnesium > Sodium >nickel > copper

(b) Sodium > Magnesium > Iron >nickel > copper > Zinc

(c) Sodium > Zinc > nickel > copper > Magnesium > Iron

(d) Sodium > Magnesium > Zinc > Iron > nickel > copper

34. An element 'X' is yellow coloured solid, insoluble in water but soluble in carbon disulphide. It has low melting point 114.5°C. It boils at 445°C and it burns with pale blue flame and releases a gas which smells like burning sulphur 'Y' which turns moist blue litmus red and finally colourless. 'X' and 'Y' are_____,

(a) S, SO_3 (b) S, H_2S (c) S, SO_2 (d) I_2, I_2O_5

35. What happens when a solution of an acid is mixed with a solution of a base in a test tube?

(i) Temperature of the solution decreases

(ii) Temperature of the solution increases

(iii) Temperature of the solution remains the same

(iv) Salt formation takes place

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

36. Aqueous solutions of salts are either acidic, basic or neutral. A Xw common salts are listed as :

I. Silver chloride II. Ammonium sulphate III. Sodium nitrate

IV. Sodium phosphate V. Sodium acetate

Which of the following correctly match the given salts with the nature of their aqueous solutions?

(a) I, III→ Solution with pH < 7; II, IV→ Solution with pH > 7; V→ Solution with pH = 7

(b) I, II→ Solution with pH < 7; IV, V→ Solution with pH > 7; III→ Solution with pH = 7

(c) I→ Solution with pH < 7; IV, II→ Solution with pH > 7; III, V→ Solution with pH = 7

(d) II→ Solution with pH < 7; I, IV, III→ Solution with pH > 7; V→ Solution with pH = 7

37. Two colourless solutions X and V were mixed together. On mixing, a yellow precipitate Z was formed. Which of the following statements is correct regarding X, Y and Z?

(a) X and Y were lead nitrate and potassium iodide solutions. The yellow precipitate Z was lead iodide.

(b) X and Y were potassium chloride solution and water. The yellow precipitate Z was of chloride ion

(c) X and Y were sodium hydroxide solution and hydrochloric acid and the yellow precipitate Z was sodium chloride

(d) X and Y were potassium hydroxide solution and nitric acid and the yellow precipitate Z was potassium nitrate

38. Aluminium is used for making cooking utensils. Which of the following properties of aluminum are responsible for the same?

(i) Good thermal conductivity (ii) Good electrical conductivity

(iii) Ductility (iv) High melting point

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

39. **Assertion (A):** All indicators are not suitable for all sorts of titrations.
Reason (R): The colour of the indicator keeps changing continuously with the change in pH values.
(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 and R is false.
(d) A is false and R is true.

40. X is formed by the partial replacement of hydroxyl groups of a diacidic base by an acidic radical. The number of ionizable hydroxyl groups in X is
(a) 0 (b) 2 (c) 1 (d) 3

MATHEMATICS

41. The numerator of a fraction is 3 less than its denominator. If 2 is added to both the numerator and the denominator, then the sum of the new fraction and original fraction is $\frac{29}{20}$. Find the original fraction
(a) 7/10 (b) 8/10 (c) 6/10 (d) None of these

42. Two poles of height 6m and 18m stand on a plane ground. If the distance between their tops is 20m, then find the distance between their feet.
(a) 12 m (b) 16 m (c) 14 m (d) 15 m

43. How many linear equations are satisfied by $x = 2$ and $y = -3$?
(a) Only one (b) Two (c) Three (d) Infinitely many

44. Evaluate: $\sqrt{x\sqrt{2^x\, x^2\sqrt{3^{x^3}\, x^3\sqrt{6^{x^6}\, x^4\sqrt{9^{x^{10}}}}}}}$
(a) 12 (b) 16 (c) 18 (d) 24

45. Two trains, named **AADHAR EXPRESS** (having students of Grade VIII, IX and X) and **UDAAN EXPRESS** (having students of Grade XI and XII) are on the same track, and they are coming toward each other. The speed of the first train is 50 km/h and the speed of the second train is 70 km/h. A bee starts flying between the trains when the distance between two trains is 100 km. The bee files from first train to second train. Once it reaches the second train, it immediately flies back to the first train and so on until trains collide. Calculate the total distance (in km) travelled by the bee, if the speed of bee is 80 km/h.
(a) 66.67 (b) 68 (c) 52.7 (d) 81

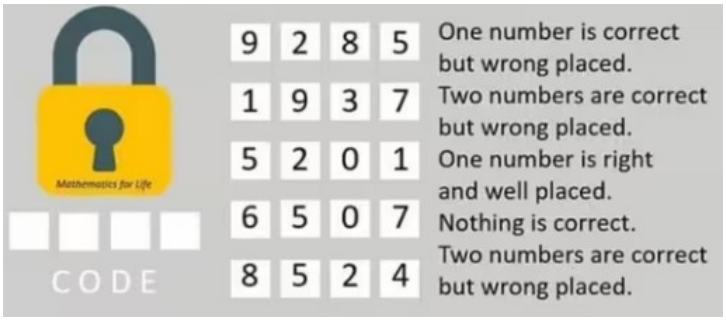
46. If $(81)^x = \frac{1}{(125)^y}$ where x, y are integers, then evaluate $12xy$.
(a) 0 (b) 1 (c) 12 (d) 60

47. The sides of a triangle are $x, x+1, 2x-1$ and its area is $x\sqrt{10}$, then the value of x is
(a) 5 (b) 7 (c) 10 (d) 6

48. The polynomial which when divided by $-x^2+x-1$ gives a quotient $x-2$ and remainder 3, is

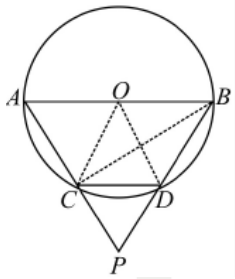
(a) x^3-3x^2+3x-5 (b) $-x^3+3x^2-3x+5$ (c) $-x^3-3x^2-3x-3$ (d) $-x^3+3x^2-3x-3$

49. A challenge was given to students of **AADHAR BATCH** to crack the code of the given question so as to get a surprised gift. In the given picture, five codes (each of four digits) are given with some description on their right side. Find the correct code.



(a) 3942 (b) 3242 (c) 3841 (d) 3092

50. In the given figure (not drawn to scale), *AB* is diameter of a circle centred at *O*. Chord *CD* is equal to radius *OC*. If *AC* and *BD* (when produced) intersect at *P*, then find $\angle APB$.



(a) 30° (b) 60° (c) 75° (d) 50°

BIOLOGY

51. Read the following statements and choose the correct set of option w.r.t. ecosystem.

I. Various ecosystems are interconnected by the flow of energy and the transfer of materials.

II. It is a self-sustained and self-regulated segment of nature.

III. Energy flow is always cyclic while the flow of nutrients is unidirectional.

IV. Density of the ecosystem is governed by the degree of biogeochemical cycling and the amount of nutrients.

(a) I, II and IV are correct (b) I, II and III are correct

(c) Only III is correct (d) III and IV are correct

52. The trophic level of lion in a forest ecosystem is

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

53. Which of the following statements about food chains are correct?

(I) Removal of 80% of tigers resulted in increased growth of vegetation

(II) Removal of most carnivores resulted in an increased population of deer

(III) Length of the food chain is limited to 3-4 trophic levels due to energy loss

(IV) Length of the food chain may vary from 2-3 trophic levels

(a) I, IV (b) I, II (c) II, III (d) III, IV

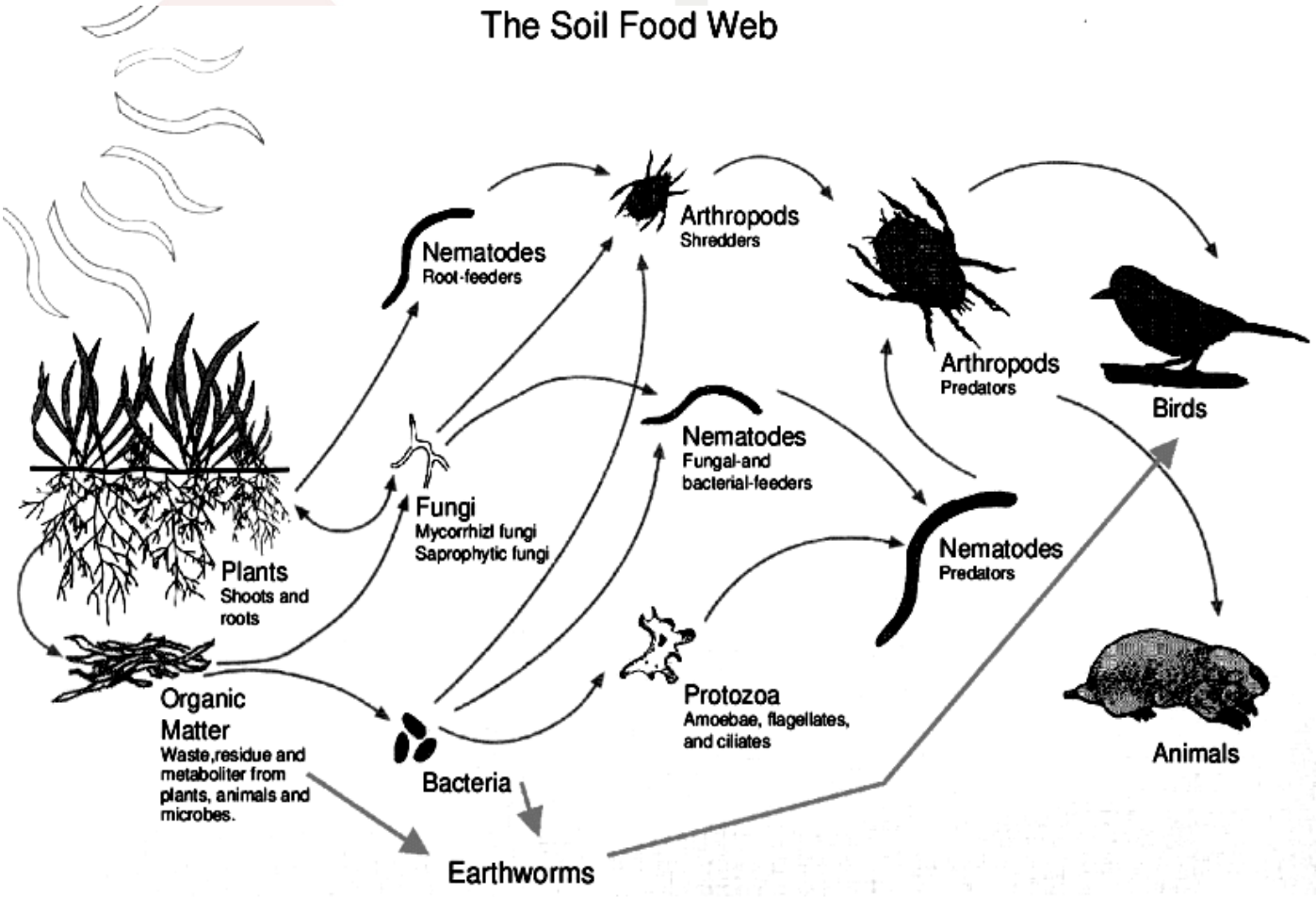
54. Consider the components of a food chain : producers→ herbivores→ carnivores→ top carnivores. Eventually what happens to all the energy passed from one element to the next?
(a) It recycles back to the producers (b) It results in a much larger decomposer population
(c) It gets dissipated into the environment (d) It is recaptured by another food chain

55. Which of the following chemicals is/are depleting ozone layer?
(a) CFC's and compounds of chlorine fume or halogen gas
(b) Carbon dioxide and carbon monoxide
(c) Hydrofluorocarbons (d) Both (a) and (c)

56. Which of the following is correct about a food chain and a food web?
(a) A food chain is a series of organisms feeding on one another, a food web consists of a number of interlinked food chains
(b) A food chain is each step or level of a trophic level, a food web consists of a number of interlinked food chains
(c) A food chain is a series of animals feeding on each other, a food web consists of a number of interlinked trophic levels
(d) A food chain consists of a number of interlinked food webs, a food web consists of a series of organisms feeding on one another

57. Pesticides sprayed in the environment can threaten predators in the area, this can cause
(a) Global warming (b) Eutrophication of lakes
(c) Depletion of the ozone layer (d) Magnification in the food chain

58. The food web above illustrates the flow of energy through an ecosystem. Which statement is a correct interpretation of the food web?



(a) Nematodes (root feeders) and fungi have the least free energy available to them because they feed off producers
(b) Birds have the least free energy available to them because they are at the top of this food web, and most of the free energy is consumed at lower trophic levels
(c) All organisms in the food web have the same amount of free energy available because they all depend on plants for their energy
(d) Plants have the least free energy available because they are the energy source for the entire food web

59. A doctor advised a person to take an injection of insulin because---.
(a) His blood pressure was low (b) His heart was beating slowly
(c) He was suffering from goitre (d) His sugar level in blood was high

60. The hormone which increases the fertility in males is called
(a) Oestrogen (b) Testosterone (c) growth hormone (d) Bile juice

61. Which of the statements is correct regarding bile?
(a) secreted by bile duct and stored in liver (b) secreted by liver and stored in bile duct
(c) Secreted by Liver and Stored in Gall Bladder (d) secreted by gall bladder and stored in liver

62. During deficiency of oxygen in tissues of humans, pyruvic acid is converted into lactic acid in____.
(a) Cytoplasm (b) Chloroplast (c) Mitochondria (d) Golgi body

63. Which of the following statement(s) is (are) true about respiration?
(a) During inhalation, ribs move inward and the diaphragm is raised
(b) In the alveoli, exchange of gases takes place i.e., oxygen from alveolar air diffuses into blood and carbon dioxide from blood into alveolar air sacs
(c) Haemoglobin has greater affinity for carbon dioxide than oxygen Alveoli does not help in increasing surface area for exchange of gases
(d) None of these

64. Main function of HCl is_____.
(a) To maintain a low pH to prevent growth of microorganisms
(b) To facilitate absorption
(c) To maintain low pH to activate pepsinogen to form pepsin
(d) To dissolve enzyme secreted in stomach

65. When a person suffers from a marked fall in blood pressure, it is recommended to administer the _____hormone.
(a) Thyroxine (b) Adrenaline (c) Insulin (d) Parathormone

66. The percentage of sunlight captured by plants is
(a) 2-10% (b) 10-20% (c) 60-80% (d) 100%

67. Select the correct statement regarding the Schwann cells.
(a) Surround axon of myelinated nerve fibre (b) Support muscle fibres
(c) Found in Haversian system of bones (d) Form basement membrane of epithelium

68. A person is excreting about 10 litres of urine per day. Which of the following endocrine gland is responsible for this?
(a) Pituitary (b) Thyroid (c) Parathyroid (d) Adrenal

69. Which statement is wrong:
(a) Sudden action in response to something in environment is called reflex action
(b) The path through which signals are transmitted from receptor to muscle is called reflex arc
(c) Motor neurons carry signal from spinal cord to effector organs
(d) Sensory neurons carry impulse from effector to receptors

70. Rhythm of sleep in our body is controlled by_____.
(a) Thymus gland (b) Pineal gland (c) ACTH (d) ADH

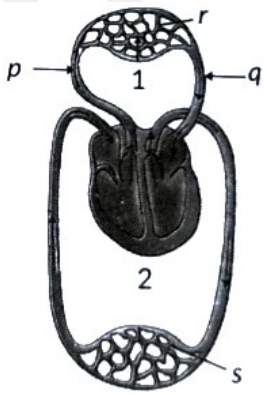
71. covers most of the axon, it is important because it
(a) Synovial fluid, facilitates electrical conduction of nerve cells
(b) myelin sheath, facilitates the release of neurotransmitter
(c) CSF, increases conduction of impulse
(d) membrane potential, increases conduction of impulse

72. The spaces between the covered part of neurons:
(a) Nodes of Ranvier (b) vesicles (c) ventricles (d) synaptic cleft

73. What is the role of schwann cells in neuron?
(a) Thermal insulation of neural axons (b) limits the speed of action potential
(c) Enhance the speed of impulse (d) All of these

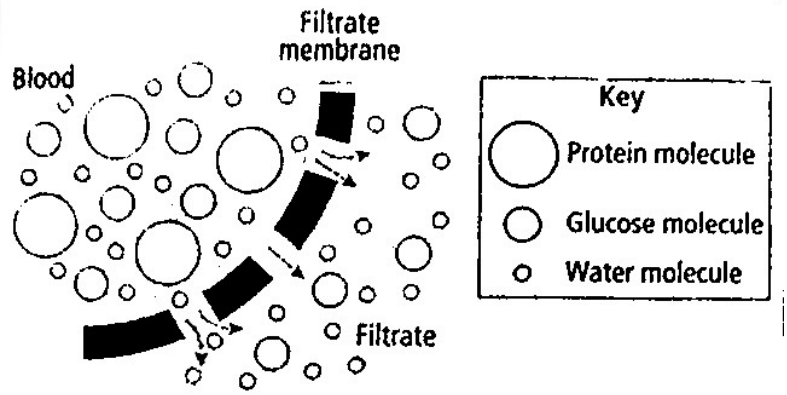
74. Nerves throughout the body other than Brain and spinal cord form
(a) CNS (b) PNS (c) ANS (d) AAS

75. Refer to the given figure answer the following questions.



Select an incorrect statement regarding the given transport system
(a) The given transport system shows double circulation as blood passes twice in one cycle
(b) Circulation - 1 shows pulmonary circulation (heart lung-heart)
(c) Circulation - 2 shows systemic circulation (heart body-heart)
(d) Mixing of oxygenated and deoxygenated blood occurs in it

76. Refer to the given diagram showing filtration in the kidney.



Due to the functioning of which processes in the urine formation
(i) Protein molecules are not normally present in urine?
(ii) Glucose molecules are not normally present in urine?

	(i)	(ii)
(a)	Tubular secretion	Tubular reabsorption
(b)	Glomerular filtration	Tubular reabsorption
(c)	Tubular reabsorption	Glomerular filtration
(d)	Glomerular filtration	Tubular secretion

77. Which one of the following is correct with reference to haemodialysis?
(a) Absorbs and resends excess of ions
(b) The dialysis unit has a coiled cellophane tube
(c) Blood is pumped back through a suitable artery after haemodialysis
(d) Nitrogenous wastes are removed by active transport

78. Which of the following is the correct feature of lymph?
(a) It is similar to the plasma of blood, colourless and contains less proteins.
(b) It is similar to the WBCs of blood, colourless and contain more proteins.
(c) It is similar to the RBCs of blood and red in colour.
(d) It contains more fat.

79. Find out correct statement given below.
(i) Length of small intestine in various animals depend upon type of food they eat.
(ii) Enzymes for digestion of carbohydrates are not secreted in gastric juice.
(iii) In an organism different enzymes have different pH optima.
(iv) Absorption of nutrients mostly occur in large intestine.
(a) (i), (ii) and (iii) (b) (i), (iii) and (iv) (c) (i) and (iv) (d) (i), (ii), (iii) and (iv)

80. Amylolytic enzymes are produced from
(a) salivary gland and liver (b) stomach and pancreas
(c) salivary glands and pancreas (d) stomach and liver.

REASONING

81. $11\frac{1}{9}, 12\frac{1}{2}, 14\frac{2}{7}, 16\frac{2}{3}, ?$
(a) $8\frac{1}{3}$ (b) $19\frac{1}{2}$ (c) 20 (d) $22\frac{1}{3}$

82. 3, 10, 29, 66, 127, ?
(a) 164 (b) 187 (c) 216 (d) 218

83. If LBAEHC is the code for BLEACH, then which of the following is coded as NBOLZKMH?
(a) OBNKZLHM (b) LOBNHMKZ (c) OCPMALNI (d) BNLOKZHM

84. If in a certain language, MACHINE is coded as LBBIHOD, which word would be coded as SLTMFNB?
(a) RKSLEMA (b) TKULGMC (c) RMSNEOA (d) TMUNGOC

85. If ZIP = 198 and ZAP = 246, then how will you code VIP?
(a) 174 (b) 222 (c) 888 (d) 990

86. Anand is son of Prema, Rajeev is brother of Prema. Neha is daughter of Rashmi. Neha is sister of Rajeev. How is Anand related to Rashmi?

(a) Son (b) Grand Son (c) Grand Father (d) Grand Daughter

87. Pointing towards a photo, Rakesh said, "She is the daughter of the only son of my grandfather". How is the girl related to Rakesh?

(a) Sister (b) Daughter (c) Grand daughter (d) Cousin

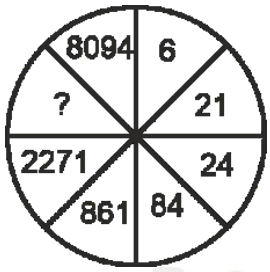
88. Which day was on 10 August 2020?

(a) Saturday (b) Sunday (c) Monday (d) Tuesday

89. Diya remembers that her brother's birthday comes after 17th but before 21st February, but her brother remembers that it is after 19th and before 24th February. When does her brother's birthday come?

(a) 22 February (b) 21 February (c) 18 February (d) 20 February

90. Find the missing number:



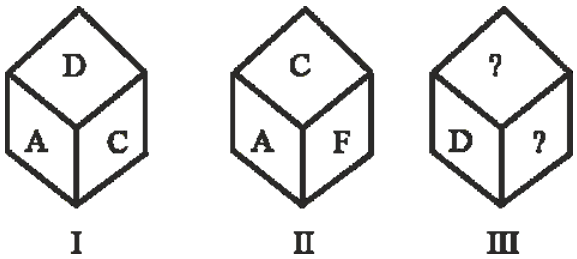
(a) 2245 (b) 2454 (c) 2154 (d) 2254

91. Find the missing number:

	874	
1	3	5
2	4	6
3	1	9
1	7	?

(a) 4 (b) 6 (c) 8 (d) 2

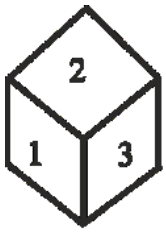
92. There are three different positions of a single dice are given, then what should come in place of question mark?



I II III

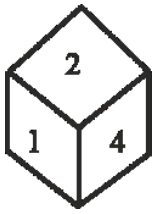
(a) E, A (b) F, C (c) E, F (d) B, F

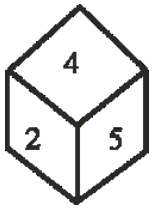
93. There are two different positions of a single dice are given, then find the correct option which represent that dice given in question figure?

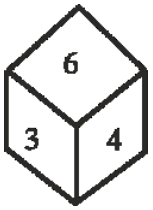


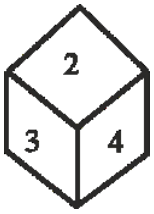
I

II

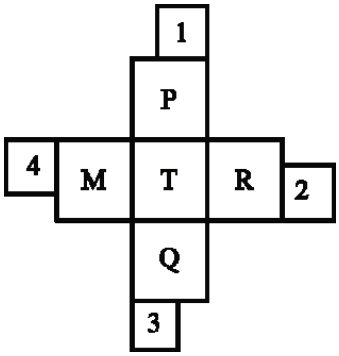
(a) 

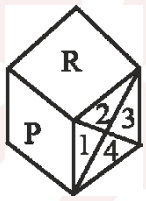
(b) 

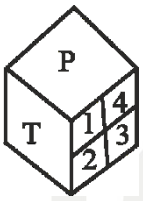
(c) 

(d) 

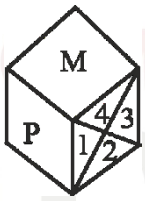
94. Which option is correct?



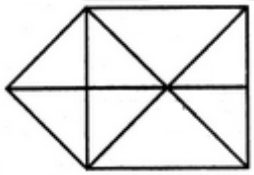
(a) 

(b) 

(c) 

(d) 

95. Find the number of triangles in the given figure.



(a) 15 (b) 16 (c) 17 (d) 18

96. The total numbers of square on a chessboard is:

(a) 204 (b) 206 (c) 178 (d) 185

Directions: (97 - 100): Study the following information and answer the question given below:

Seven friends M, V, K, D, T, J and R study in the class III, IV, V, VI, VII, VIII and IX. Each has a favorite colour viz. Yellow, Sky-blue, Red, White, Black, Green and Violet. J likes red colour and studies in class V. R likes violet color and studies in class III. M studies in class VIII and he likes neither green nor yellow colour. K likes white colour and he studies neither in class VII nor in class IV. D studies in class VI and likes Black colour. T doesn't study in class IV. V doesn't like Green colour.

97. In which class does V study?

(a) III (b) IV (c) V (d) VI

98. Who likes Green colour?

(a) V (b) M (c) T (d) Data inadequate

99. Which of the following pair is correct?

(a) Class IV – K (b) Class IX – D (c) Class VII – T (d) Data inadequate

100. Which of the following pairs is correct?

(a) T – Yellow (b) M – Blue (c) J – Violet (d) D – White

❐❐❐

WISDOM SCHOLASTIC APTITUDE TEST (WSAT)

for

IIT-JEE ASPIRANTS

Sample Question Paper

PHYSICS

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1. When a thin convex lens is put in contact with a thin concave lens of the same focal length *f*, then the resultant combination has focal length equal to

   (a) f/2 (b) 2f (c) 0 (d) ∞

2. A mark at the bottom of a liquid appears to rise by 0.1 m and the depth of the liquid is 1m. The refractive index of the liquid is

   (a) 1.33 (b) 9/10 (c) 10/9 (d) 1.5

3. A convex mirror of focal length *f* forms an image which is 1/*n* times the object. The distance of the object from the mirror is

   (a) $(n-1)f$ (b) $\left[\frac{n-1}{n}\right]f$ (c) $\left[\frac{n+1}{n}\right]f$ (d) $(n+1)f$

4. When a ray of light falls on a given plate at an angle of incidence 60°, the reflected and refracted rays are found to be normal to each other. The refractive index of the material of the plate is

   (a) $\frac{\sqrt{3}}{2}$ (b) 1.5 (c) 1.732 (d) 2

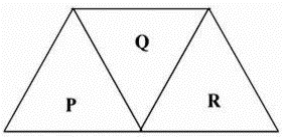
5. A vessel of depth 2d cm is half filled with a liquid of refractive index μ_1 and the upper half with a liquid of refractive index μ_2. The apparent depth of the vessel when seen perpendicularly from above is

   (a) $d\left[\frac{\mu_1\mu_2}{\mu_1+\mu_2}\right]$ (b) $d\left[\frac{1}{\mu_1}+\frac{1}{\mu_2}\right]$ (c) $2d\left[\frac{1}{\mu_1}+\frac{1}{\mu_2}\right]$ (d) $2d\left[\frac{1}{\mu_1\,\mu_2}\right]$

6. A ray of light travels from water to glass. The angle of incidence is 30°. Then the angle of refraction is $\left(\mu_g = 3/2, \mu_w = 4/3\right)$

   (a) $\sin^{-1}(8/9)$ (b) $\sin^{-1}(1/4)$ (c) $\sin^{-1}(4/9)$ (d) $\sin^{-1}(1/9)$

7. A given ray of light suffers minimum deviation in an equilateral prism P. Additional prisms Q and R of identical shape and of the same material as P are now added as shown in the figure. The ray will now suffer.



   (a) greater deviation (b) no deviation

   (c) same deviation as before (d) total internal reflection

8. A ray of light passes from a medium of refractive index μ into air. The angle of incidence is found to be half the angle of refraction. What is the angle of refraction?

   (a) $\cos^{-1}(\mu/2)$ (b) $\sin^{-1}(\mu/2)$ (c) $2\sin^{-1}(\mu/2)$ (d) $2\cos^{-1}(\mu/2)$

9. The distance between an object and a concave lens is m times the focal length of the lens. The linear magnification produced by the lens will be equal to

(a) m (b) $\frac{1}{m}$ (c) $m+1$ (d) $\frac{1}{m+1}$

10. Different objects at different distance are seen by the eye. The parameter that remains constant is

(a) the focal length of the eye lens (b) the object distance from the eye lens

(c) the radii of curvature of the eye lens (d) the image distance from the eye lens

11. A young boy can adjust the power of his eye lens between 50 D & 60 D. His far point is infinity. What is the distance of his retina from eye-lens.

(a) 1.5 cm (b) 2 cm (c) 2.5 cm (d) 3.0 cm

12. A myopic person having far point 80 cm uses spectacles of power –1.0 D. How far can he see clearly?

(a) 200 cm (b) 300 cm (c) 400 cm (d) 150 cm

13. Dispersion of light by a prism is due to the change in

(a) frequency of light (b) speed of light

(c) scattering (d) None of these

14. Which of the following changes when light goes from one medium to another medium.

(a) speed (b) wavelength (c) frequency (d) Both (a) and (b)

15. The colour of the scattered light depends on the

(a) speed of light (b) size of the scattering particles

(c) medium (d) none of the above

16. A force $F=(x+2)$ acts on a particle in x-direction where F is in newton and x in meter. Find the work done by this force during displacement from x = 1.0 m to x = 3.0 m

(a) 4 J (b) 5 J (c) 8 J (d) 6 J

17. How much work is done to stretch a spring by 10 cm if its spring constant is 500 N/m.

(a) 2.5 J (b) 5 J (c) 10 J (d) none of these

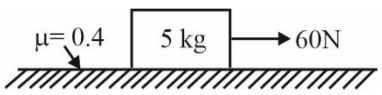
18. A person of mass 60 kg moves up the stairs on a stair case. If each stair height is 20 cm and there are total 40 stairs then the average power delivered by the person to reach the top of stair case in 60 sec? (take g = 10 m/s^2)

(a) 40 watt (b) 80 watt (c) 60 watt (d) 100 watt

19. A crane lifts 1000 kg to a height of 5m in 10 sec. Its power is (take g = 10 m/s^2)

(a) 5 kw (b) 7.5 kw (c) 10 kw (d) 15 kw

20. The kinetic energy of block after moving a distance of 2m in below diagram is



(a) 40 J (b) 60 J (c) 90 J (d) 80 J

CHEMISTRY

21. Amongst the following statements, the number of incorrect statements are

(I) The nucleus of an atom is situated at its centre

(II) There is a electrostatic force of attraction between nucleus and electron

(III) Electrons can jump from one orbit to another only when energy is supplied to it

(IV) An electron neither loses nor gains energy when it jumps from one orbit to another

(V) There are infinite number of circular orbitals around the nucleus of an atom

(VI) All circular orbits are known as stationary orbits

(a) 3 (b) 2 (c) 5 (d) 4

22. Consider the following matches:

(i) Electron → 9.1×10^{-31} kg

(ii) Proton → Discovered by Rutherford

(iii) Neutron → Approximately equal to 1 a.m.u

(iv) Electron → Named by Chadwick

(v) Proton → Named by Rutherford

(vi) Nucleus → Named by Goldstein

(vii) Neutron → Discovered by Chadwick

The total number of correct matches are

(a) 4 (b) 5 (c) 6 (d) 3

23. From amongst the following chemical species identify and isoelectronic species which is isotonic too:

(I) $^{39}_{18}Ar$ (II) $^{40}_{19}K^{+}$ (III) $^{41}_{20}Ca^{+}$ (IV) $^{42}_{20}Ca^{+}$

(a) I and II (b) II, and IV (c) III and IV (d) I, IV and III

24. Total number of incorrect electronic configurations are

(i) Be → 2, 2 (ii) Mg^{2+} → 2, 8, 2 (iii) F^{-} → 2, 8 (iv) Ca → 2, 8

(v) K^{+} → 2, 8, 8, 1 (vi) Cl^{-} → 2, 8, 8 (vii) Li^{+} → 2 (viii) P^{2-} → 2, 8, 8

(a) 6 (b) 5 (c) 3 (d) 4

25. Solid calcium oxide reacts vigorously with a compound **X**, Compound **Y** accompanied by liberation of heat. This process is called slaking of lime. **Y** dissolves in water to form its solution named **Z**. Find the total number of true statements about slaking of lime and the solution formed?

(i) It is an redox reaction

(ii) It is an exothermic reaction

(iii) The pH of the resulting solution will be more than seven

(iv) The resulting solution will be alkaline

(v) When excessive CO_2 is passed through Z, Z turns milky

(vi) Z turns milky due to formation of calcium bicarbonate

(a) 5 (b) 6 (c) 4 (d) 3

26. Three beakers labelled as A, B and C each containing 25 mL of water were taken. A small amount of NaOH, anhydrous $CuSO_4$ and NaCl were added to the beakers A, B and C respectively. It was observed that there was an increase in the temperature of the solutions contained in beakers A and B, whereas in case of beaker C, the temperature of the solution falls.

(i) In beakers A and B, exothermic process has occurred

(ii) In beakers A and B, endothermic process has occurred

(iii) In beaker C exothermic process has occurred.

(iv) In beaker C endothermic process has occurred

Total number of correct statements are

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

27. The following reaction is used for the preparation of oxygen gas in the laboratory

$$2KClO_3(s) \xrightarrow[\text{Catalyst}]{\text{Heat}} 2KCl(s) + 3O_2(g)$$

(i) It is a thermal decomposition reaction and exothermic in nature

(ii) It is a combination reaction which is irreversible

(iii) It is a decomposition reaction as well as redox reaction

(iv) It is a redox reaction which is also endothermic in nature

Total number of correct statements are

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

28. A magnesium ribbon (X) about 2cm long and a piece of coal (Y) were taken in a watch-glass by four students P, Q, R and S. On burning of these two 'X' and 'Y' by using burner following observation were recorded in the form of table as given below:

Observation by	Item	Flame's colour	Residue obtained
P	X	Dazzling white flame	Greyish Ash
	Y	Yellowish flame	Black ash
Q	X	Dazzling white flame	White powder
	Y	Sooty flame	Blackish grey ash
R	X	White flame	Grey powder
	Y	White flame	Black coke
S	X	Yellowish flame	Greyish Ash
	Y	Sooty flame	Black Ash

The correct observation was made by the student.

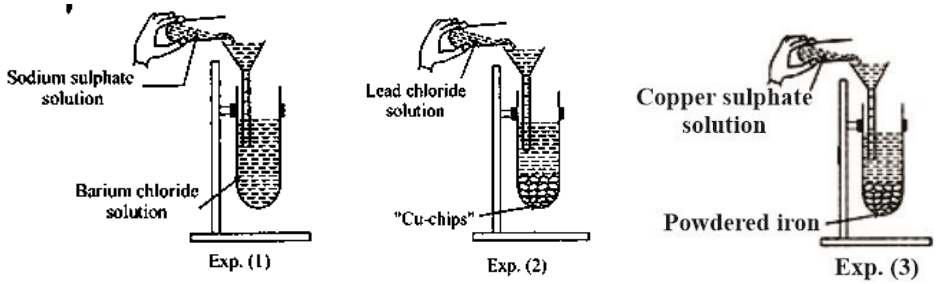
(a) Student P and Q made correct observation about X's flame

(b) Only Student Q made correct observation about Y's flame

(c) All Students made incorrect observation about X's residue

(d) Only Student P made correct observation about both X's flame and residue

29. A student from Wisdom World School performs three experiments as shown in the following diagrams.



Identify total no. of correct statements.

(1) In exp 1, double displacement reaction takes place while in exp 2 & 3 displacement reaction takes place

(2) In exp 3, the colour of solution changes from Blue to green

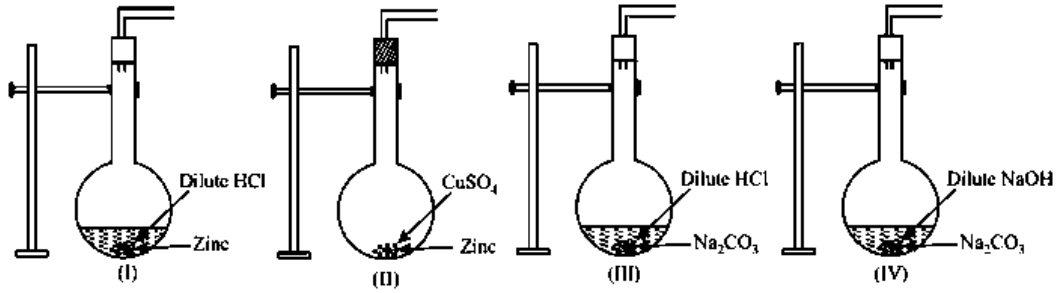
(3) In exp 1, a yellow precipitate of Barium chloride is produced

(4) In exp 2, the colour of solution changes from white to Blue

(5) The chemical reaction takes place is redox in exp 1 but non-redox in experiment 3

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

30. The setup that would result in a rapid evolution of gas would be



(a) I and II (b) I and IV (c) I and III (d) III and IV

31. Find the number of total types under which the given reaction falls

$NaOH + HCl \rightarrow NaCl + H_2O$

i) Precipitation Reaction
ii) double displacement reaction
iii) Neutralisation reaction
iv) reversible reaction
v) irreversible reaction
vii) endothermic reaction
vi) exothermic reaction
viii) Non-redox reaction

(a) 3 (b) 4 (c) 7 (d) 5

32. (i) $AgNO_3(aq) + NaCl(aq) \rightarrow P + Q$ (ii) $PCl_5(s) \xrightarrow{\Delta} R + S$

Q from the above equations is used in black and white photography and S is used for manufacturing bleaching powder.

	P	Q	R	S
(a)	AgCl	$NaNO_3$	PCl_3	Cl_2
(b)	$NaNO_3$	AgCl	Cl_2	PCl_3
(c)	AgCl	PCl_3	$NaNO_3$	Cl_2
(d)	$NaNO_3$	AgCl	PCl_3	Cl_2

33. Which of the following is the correct arrangement of the given metals in ascending order of their reactivity? Zinc, Iron, Magnesium, Sodium, Copper and nickel

(a) Zinc > Iron > Magnesium > Sodium >nickel > copper

(b) Sodium > Magnesium > Iron >nickel > copper > Zinc

(c) Sodium > Zinc > nickel > copper > Magnesium > Iron

(d) Sodium > Magnesium > Zinc > Iron > nickel > copper

34. An element 'X' is yellow coloured solid, insoluble in water but soluble in carbon disulphide. It has low melting point 114.5°C. It boils at 445°C and it burns with pale blue flame and releases a gas which smells like burning sulphur 'Y' which turns moist blue litmus red and finally colourless. 'X' and 'Y' are_____,

(a) S, SO_3 (b) S, H_2S (c) S, SO_2 (d) I_2, I_2O_5

35. What happens when a solution of an acid is mixed with a solution of a base in a test tube?

(i) Temperature of the solution decreases

(ii) Temperature of the solution increases

(iii) Temperature of the solution remains the same

(iv) Salt formation takes place

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

36. Aqueous solutions of salts are either acidic, basic or neutral. A Xw common salts are listed as :

I. Silver chloride II. Ammonium sulphate III. Sodium nitrate

IV. Sodium phosphate V. Sodium acetate

Which of the following correctly match the given salts with the nature of their aqueous solutions?

(a) I, III→ Solution with pH < 7; II, IV→ Solution with pH > 7; V→ Solution with pH = 7

(b) I, II→ Solution with pH < 7; IV, V→ Solution with pH > 7; III→ Solution with pH = 7

(c) I→ Solution with pH < 7; IV, II→ Solution with pH > 7; III, V→ Solution with pH = 7

(d) II→ Solution with pH < 7; I, IV, III→ Solution with pH > 7; V→ Solution with pH = 7

37. Two colourless solutions X and V were mixed together. On mixing, a yellow precipitate Z was formed. Which of the following statements is correct regarding X, Y and Z?

(a) X and Y were lead nitrate and potassium iodide solutions. The yellow precipitate Z was lead iodide.

(b) X and Y were potassium chloride solution and water. The yellow precipitate Z was of chloride ion

(c) X and Y were sodium hydroxide solution and hydrochloric acid and the yellow precipitate Z was sodium chloride

(d) X and Y were potassium hydroxide solution and nitric acid and the yellow precipitate Z was potassium nitrate

38. Aluminium is used for making cooking utensils. Which of the following properties of aluminum are responsible for the same?

(i) Good thermal conductivity (ii) Good electrical conductivity

(iii) Ductility (iv) High melting point

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

39. **Assertion (A):** All indicators are not suitable for all sorts of titrations.
Reason (R): The colour of the indicator keeps changing continuously with the change in pH values.
(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 and R is false.
(d) A is false and R is true.

40. X is formed by the partial replacement of hydroxyl groups of a diacidic base by an acidic radical. The number of ionizable hydroxyl groups in X is
(a) 0 (b) 2 (c) 1 (d) 3

MATHEMATICS

41. For the equations, $ax^2+bxy+cy^2=d$, $bx^2+cxy+ay^2=d$
(a) $x=3y$ (b) $x=-y$ (c) $x=y$ (d) $2y=x$

42. Product of two roots of the expression $x^4-11x^3+kx^2+269x-2001$ is –69, then evaluate *k*.
(a) 5 (b) –7 (c) –10 (d) 8

43. What number should be added to the polynomial $3x^2+5x$ to give the square of a first-degree polynomial?
(a) $\frac{25}{12}$ (b) $\frac{25}{24}$ (c) $\frac{25}{36}$ (d) $\frac{25}{48}$

44. Find number of quadratic equations (having real roots) which are unchanged by squaring their roots.
(a) 1 (b) 3 (c) 9 (d) 15

45. How many pairs of positive integers a, b exists such that $\text{HCF}(a,b)+LCM(a,b)=77$?
(a) 3 (b) 5 (c) 6 (d) 9

46. Polynomial *f*(x) when divided by $(x-a),(x-b),(x-c)$ then remainders is *a*, *b*, *c* respectively find remainder when *f*(*x*) is divided by $(x-a)(x-b)(x-c)$.
(a) $2x-3$ (b) x (c) $a+b+c$ (d) $abcx$

47. Evaluate: $\sqrt{\sqrt[x]{2^x\sqrt[x^2]{3^{x^3}\sqrt[x^3]{6^{x^6}\sqrt[x^4]{9^{x^{10}}}}}}}$
(a) 12 (b) 16 (c) 18 (d) 24

48. If $x+\frac{1}{x}=\sqrt{2}$, then find $x^{80}+x^{76}+x^{72}+x^{68}+x^{64}+4$.
(a) 5 (b) 10 (c) 15 (d) 25

49. If $x^2-3x+1=0$, find $x^5+\frac{1}{x^5}$.
(a) 120 (b) 123 (c) 125 (d) 135

50. Two trains, named **AADHAR EXPRESS** (having students of Grade VIII, IX and X) and **UDAAN EXPRESS** (having students of Grade XI and XII) are on the same track, and they are coming toward each other. The speed of the first train is 50 km/h and the speed of the second train is 70 km/h. A bee starts flying between the trains when the distance between two trains is 100 km. The bee files from first train to second train. Once it reaches the second train, it immediately flies back to the first train and so on until trains collide. Calculate the total distance (in km) travelled by the bee, if the speed of bee is 80 km/h.

(a) 66.67 (b) 68 (c) 52.7 (d) 81

51. If $(81)^x = \frac{1}{(125)^y}$ where x, y are integers, then evaluate $12xy$.

(a) 0 (b) 1 (c) 12 (d) 60

52. If $\sqrt{a}+\sqrt{b}-\sqrt{c}=0$, then the value of $(a+b-c)^2$ is

(a) $2ab$ (b) $2bc$ (c) $4ab$ (d) $4ac$

53. Let $p(x)=x^2+bx+c$, where b and c are integers. If $p(x)$ is the factor of both x^4+6x^2+25 and $3x^4+4x^2+28x+5$, what is the value of $p(1)$?

(a) 0 (b) 1 (c) 2 (d) 4

54. If $xy = 6$ and $x^2y+xy^2+x+y=63$, then the value of $x^2+y^2=?$

(a) 13 (b) $\frac{1173}{32}$ (c) 55 (d) 69

55. E is the midpoint of diagonal BD of a parallelogram ABCD. If the point E is joined to a point F on DA such that $DF=\frac{1}{3}DA$, then the ratio of the area of ΔDEF to the area of the quadrilateral ABEF is

(a) 1:7 (b) 1:4 (c) 1:5 (d) 2:5

56. One of the factors of $81a^4+(x-2a)(x-5a)(x-8a)(x-11a)$ is

(a) $x^2-13a+31a^2$ (b) $x^2+13a+31a^2$ (c) $x^2+18a-31a^2$ (d) $x^2-18a+31a^2$

57. If $\frac{a^3}{a^2+ab+b^2}+\frac{b^3}{b^2+bc+c^2}+\frac{c^3}{c^2+ca+a^2}=K$ then

$\frac{b^3}{a^2+ab+b^2}+\frac{c^3}{b^2+bc+c^2}+\frac{a^3}{c^2+ca+a^2}=?$

(a) $\frac{1}{K}$ (b) K (c) $\frac{K}{K+1}$ (d) $\frac{K+1}{K}$

58. At present Asha's age (in years) is 2 more than the square of her daughter Nisha's age. When Nisha grows to her mother's present age, Asha's age would be one year less than 10 times the present age of Nisha. Find the present age (in years) of Asha.

(a) 31 (b) 30 (c) 27 (d) 32

59. The sides of a triangle are $x, x+1, 2x-1$ and its area is $x\sqrt{10}$, then the value of x is

(a) 5 (b) 7 (c) 10 (d) 6

60. If $ax+4y+3=0,\ bx+5y+3=0$ and $cx+6y+3=0$ are concurrent lines, then $a+c=$

(a) $3b$ (b) $2b$ (c) b (d) $4b$

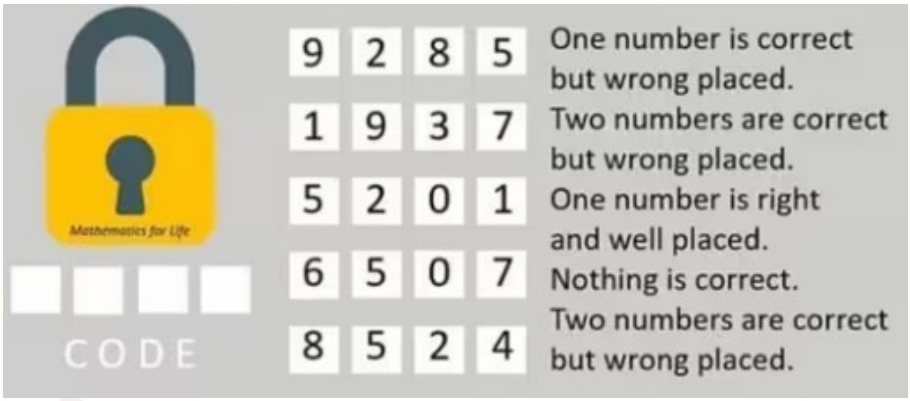
61. If (5, 3), (4, 2) and (1, –2) are the mid points of sides of triangle ABC, then the area of ΔABC is

(a) 2 sq. units (b) 3 sq. units (c) 1sq. units (d) 4 sq. units

62. The polynomial which when divided by $-x^2+x-1$ gives a quotient $x-2$ and remainder 3, is

(a) x^3-3x^2+3x-5 (b) $-x^3+3x^2-3x+5$ (c) $-x^3-3x^2-3x-3$ (d) $-x^3+3x^2-3x-3$

63. A challenge was given to students of **AADHAR BATCH** to crack the code of the given question so as to get a surprised gift. In the given picture, five codes (each of four digits) are given with some description on their right side. Find the correct code.

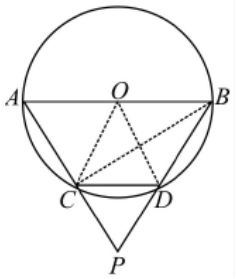


(a) 3942 (b) 3242 (c) 3841 (d) 3092

64. In $\Delta PAB, PA=PB$, are area of $\Delta PAB=10$ sq. units. Find the coordinates of P, if coordinates of A and B are (1, 2) and (3, 8) respectively.

(a) (–1, 6) (b) (5, 4) (c) Both (a) and (b) (d) None of these

65. In the given figure (not drawn to scale), AB is diameter of a circle centred at O. Chord CD is equal to radius OC. If AC and BD (when produced) intersect at P, then find $\angle APB$.



(a) 30° (b) 60° (c) 75° (d) 50°

66. Select the correct statement.

(a) The sum of a rational number and an irrational number is a rational number

(b) The product of a non-zero rational number with an irrational number is an irrational number

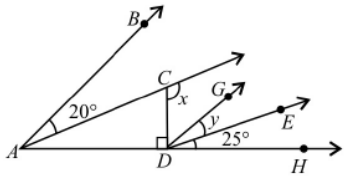
(c) The quotient of an irrational number with a non-zero rational number is a rational number

(d) None of these

67. The roots of the equation $x^{2/3}+x^{1/3}-2=0$ are____.

(a) 1, –8 (b) 1, –2 (c) $\frac{2}{3},\frac{1}{3}$ (d) –2, –8

68. In the given figure, $AB \parallel DG, AC \parallel DE, \angle EDH = 25°$ and $\angle BAC = 20°$. Find the values of x and y.



(a) 115°, 20° (b) 95°, 20° (c) 115°, 30° (d) 90°, 25°

69. Find the value of p and q respectively.

$$\left(\frac{1+m}{m}\right)p+\left(\frac{1+n}{n}\right)q = m-n, \frac{p}{m}-\frac{4q}{n} = 5; mn \neq 0$$

(a) $-n, m$ (b) m^2, n^2 (c) n^2, m^2 (d) $m, -n$

70. The equation $\frac{2x^2}{x-1}-\frac{2x+7}{3}+\frac{4-6x}{x-1}+1=0$ has the root(s)

(a) 2 (b) 6 (c) 4 (d) 10

71. Suppose that $w = 2^{1/2}, x = 3^{1/3}, y = 6^{1/6}$ and $z = 8^{1/8}$. From among this number list, the sum of the alphabetical position of the biggest and second biggest numbers is (for example alphabetical position of a is 1 and that of b is 2 and so on)

(a) 47 (b) 35 (c) 29 (d) 27

72. For given equation $3x^2 + x = 1$ the value of $6x^3 - x^2 - 3x$ is equal to $-k$. Evaluate k

(a) 3 (b) 1 (c) 5 (d) 9

73. Find the sum of all integral solutions of the equation $3^{2x^2} + 2.3^{x^2+x+6} - 3^{2x+13} = 0$

(a) 3 (b) 5 (c) 9 (d) 1

74. If 'n' is a positive integer such that $\frac{n}{810} = 0$. $d25\ d25\ d25....$ where d is a single digit in decimal base. Find the sum of digit of n.

(a) 6 (b) 8 (c) 12 (d) 14

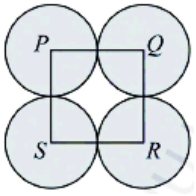
75. If one root of $\sqrt{a-x}+\sqrt{b+x} = \sqrt{a}+\sqrt{b}$ is 2012 and $a-b=k$ then evaluate $\frac{k}{503}$.

(a) 2 (b) 4 (c) 6 (d) 8

76. 2 men can complete a work in 3 days, while 3 women can complete the same work in 4 days and 4 children can complete the same work in 6 days. In how many days 1 man and 2 children can complete the same work?

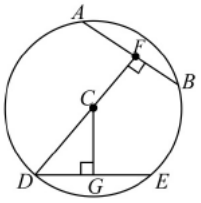
(a) 6 (b) 16 (c) 28 (d) 4

77. In the given figure, PQRS is a square and point P, Q, R and S are the centres of four circles each having a radius of length 4 units. If a point is selected at random from the interior of square PQRS, then what is the probability that the point will be selected from the unshaded region?



(a) 7/15 (b) 8/19 (c) 3/14 (d) 5/7

78. In the given figure, if C is the centre of circle, $AB = 8cm, DE = 8cm$ and $CD = 5cm$, then CF is equal to



(a) 3 cm (b) 2 cm (c) 5 cm (d) 4 cm

79. If the points $P(x, y), Q(-2, 1)$ and $R(4, -1)$ are collinear and $x - y = 1$, then find the sum of x and y.

(a) 1 (b) –1 (c) 0 (d) 2

80. If $mny^2 = (y+1)(m-n)^2$, then find the value of $\frac{2^2}{y} + \frac{2^2}{y^2} + 1$.

(a) $\left(\frac{m-n}{m+n}\right)^2$ (b) $\left(\frac{m+n}{m-n}\right)^2$ (c) $\left(\frac{m}{m+n}\right)^2$ (d) $\left(\frac{n}{m+n}\right)^2$

REASONING

81. $11\frac{1}{9}, 12\frac{1}{2}, 14\frac{2}{7}, 16\frac{2}{3}, ?$

(a) $8\frac{1}{3}$ (b) $19\frac{1}{2}$ (c) 20 (d) $22\frac{1}{3}$

82. 3, 10, 29, 66, 127, ?

(a) 164 (b) 187 (c) 216 (d) 218

83. If LBAEHC is the code for BLEACH, then which of the following is coded as NBOLZKMH?

(a) OBNKZLHM (b) LOBNHMKZ (c) OCPMALNI (d) BNLOKZHM

84. If in a certain language, MACHINE is coded as LBBIHOD, which word would be coded as SLTMFNB?

(a) RKSLEMA (b) TKULGMC (c) RMSNEOA (d) TMUNGOC

85. If ZIP = 198 and ZAP = 246, then how will you code VIP?

(a) 174 (b) 222 (c) 888 (d) 990

86. Anand is son of Prema, Rajeev is brother of Prema. Neha is daughter of Rashmi. Neha is sister of Rajeev. How is Anand related to Rashmi?

(a) Son (b) Grand Son (c) Grand Father (d) Grand Daughter

87. Pointing towards a photo, Rakesh said, "She is the daughter of the only son of my grandfather". How is the girl related to Rakesh?

(a) Sister (b) Daughter (c) Grand daughter (d) Cousin

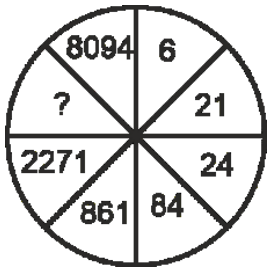
88. Which day was on 10 August 2020?

(a) Saturday (b) Sunday (c) Monday (d) Tuesday

89. Diya remembers that her brother's birthday comes after 17th but before 21st February, but her brother remembers that it is after 19th and before 24th February. When does her brother's birthday come?

(a) 22 February (b) 21 February (c) 18 February (d) 20 February

90. Find the missing number:



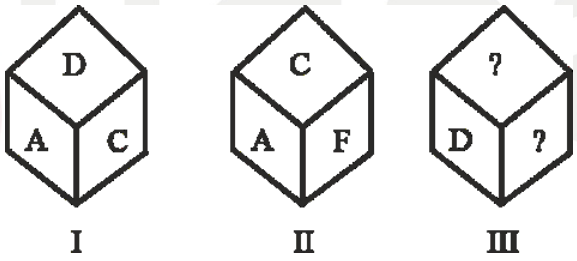
(a) 2245 (b) 2454 (c) 2154 (d) 2254

91. Find the missing number:

874		
1	3	5
2	4	6
3	1	9
1	7	?

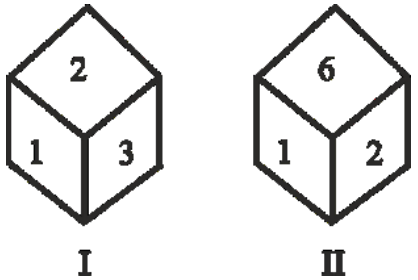
(a) 4 (b) 6 (c) 8 (d) 2

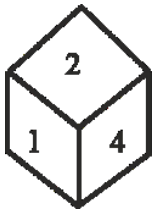
92. There are three different positions of a single dice are given, then what should come in place of question mark?

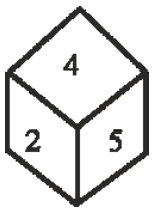


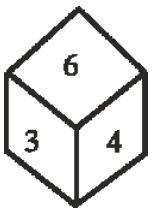
(a) E, A (b) F, C (c) E, F (d) B, F

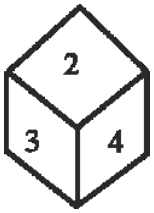
93. There are two different positions of a single dice are given, then find the correct option which represent that dice given in question figure?



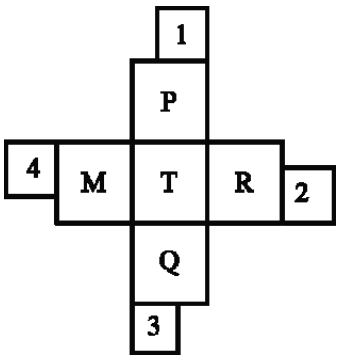
(a) 

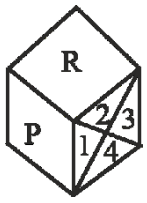
(b) 

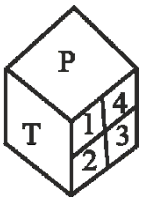
(c) 

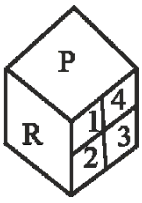
(d) 

94. Which option is correct?



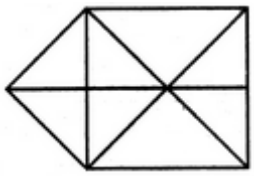
(a) 

(b) 

(c) 

(d) 

95. Find the number of triangles in the given figure.



(a) 15 (b) 16 (c) 17 (d) 18

96. The total numbers of square on a chessboard is:

(a) 204 (b) 206 (c) 178 (d) 185

Directions: (97 - 100): Study the following information and answer the question given below:

Seven friends M, V, K, D, T, J and R study in the class III, IV, V, VI, VII, VIII and IX. Each has a favorite colour viz. Yellow, Sky-blue, Red, White, Black, Green and Violet. J likes red colour and studies in class V. R likes violet color and studies in class III. M studies in class VIII and he likes neither green nor yellow colour. K likes white colour and he studies neither in class VII nor in class IV. D studies in class VI and likes Black colour. T doesn't study in class IV. V doesn't like Green colour.

97. In which class does V study?

(a) III (b) IV (c) V (d) VI

98. Who likes Green colour?

(a) V (b) M (c) T (d) Data inadequate

99. Which of the following pair is correct?

(a) Class IV – K (b) Class IX – D (c) Class VII – T (d) Data inadequate

100. Which of the following pairs is correct?

(a) T – Yellow (b) M – Blue (c) J – Violet (d) D – White

❐❐❐