

WISDOM WORLD SCHOOL, KURUKSHETRA

Wisdom Scholarship-cum-Admission Test (WSAT)

for

Admission to Grade 11 (UDAAN Batch)

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.

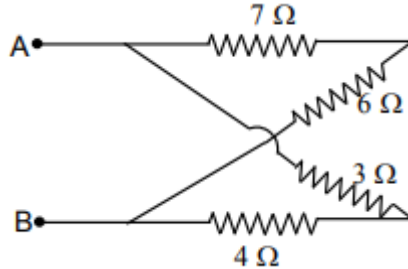
Sr. No.	Grade 11	Physics	Chemistry	Mathematics	Biology	Reasoning	Total Questions
1	Non Medical	20	20	40	-	20	100
2.	Medical	20	20	10	30	20	100

SYLLABUS FOR WSAT

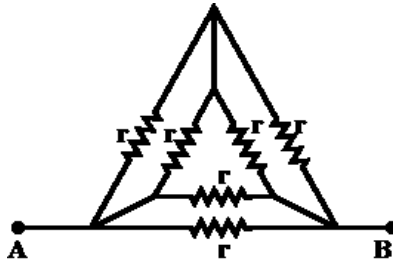
SUBJECT	SYLLABUS
PHYSICS	Work and Energy, Light (Reflection and Refraction), Human eye and colorful world
CHEMISTRY	Chemical Reaction and Equation, Acid, Base and Salt, Structure of an Atom
BIOLOGY	Life Processes, Control and Coordination, Our Environment
MATHEMATICS	Real Numbers, Polynomials, Quadratics Equations, Pair of Linear Equation, Arithmetic Progression, Coordinate Geometry, Triangles
MENTAL ABILITY TEST	Verbal : Number Series, Alphabet Test, Coding-Decoding, Blood Relation, Calendar, Reasoning Puzzle Non-Verbal : Counting figures, Missing and Inserting Character, Dice

WISDOM SCHOLASTIC APTITUDE TEST (WSAT)
for
NEET ASPIRANTS
Sample Question Paper
PHYSICS

1. Find the equivalent resistance between A and B in the adjacent circuit.



- (a) 4Ω (b) 4.5Ω (c) 10Ω (d) 20Ω
2. The equivalent resistance between A and B in the following circuit is:



- (a) $\frac{r}{2}$ (b) $\frac{r}{3}$ (c) $6r$ (d) $2r$
3. A convex lens of focal length 1 meter is placed in contact with another concave lens of equal focal length. What is the focal length of the new lens so formed?
(a) $+1 \text{ m}$ (b) Infinity (c) $+2 \text{ m}$ (d) None of these
4. The nature of image of a candle flame located 40 cm from a concave spherical mirror is real, inverted and magnified four times. Then the radius of curvature of the mirror is:
(a) 32 cm (b) 64 cm (c) 48 cm (d) 80 cm
5. An object of height 6 cm is placed on the principal axis of a concave mirror of focal length f at a distance of $3f$. The length of the image will be:
(a) 2 cm (b) 12 cm (c) 3 cm (d) 1.2 cm
6. The magnification of an object placed in front of a convex lens of focal length 30 cm is $+2$. To obtain a magnification of -2 the object has to be moved a distance equal to:
(a) 10 cm (b) 30 cm (c) 20 cm (d) 40 cm
7. The near point of a hypermetropic person is 75 cm in front of the eye. Power of the lens required to correct the problem:
(a) $-1D$ (b) $+2.66D$ (c) $+1D$ (d) $-2D$

8. The stars twinkle at night because:
(a) They emit energy (b) Of diffraction (c) Of refraction (d) Of reflection
9. Three bulbs of rating 40W, 60W and 100W are designed to work on 220 V mains. Which bulb will glow most brightly if they are connected in series across 220 V mains?
(a) 40 W bulb (b) 50 W bulb
(c) 100 W bulb (d) All will burn equally bright
10. Two electric lamps of 40W, 200V rating are connected in parallel across the mains (220 V). The net power consumed by them is:
(a) 80 W (b) 40 W (c) 96.8 W (d) 28.8 W

CHEMISTRY

11. The next higher homologue of acetylene is
(a) Ethene (b) Propene (c) Methane (d) Propyne
12. The molecular mass of butane is:
(a) 54 (b) 56 (c) 58 (d) 60
13. Which of the following is not a crystalline allotropic form of carbon?
(a) Diamond (b) Graphite (c) Fullerene (d) Coke
14. When lead nitrate is heated there is appearance of brown fumes, because of formation of
(a) Lead oxide (b) Nitrous oxide
(c) Nitric oxide (d) Nitrogen dioxide
15. Copper displaces which of the following salts?
(a) $ZnSO_4$ (b) $AgNO_3$ (c) $NiSO_4$ (d) $FeSO_4$
16. On heating calcium carbonate decomposes to give _____ product.
(a) 1 (b) 2 (c) 3 (d) 4
17. Which is used in baking powder?
(a) $Na_2CO_3 \cdot 10H_2O$ (b) $NaHCO_3$ (c) Na_2CO_3 (d) $NaOH$
18. Sodium oxide changes the colour of china rose solution from:
(a) Blue to Red (b) Green to Blue (c) Pink to Green (d) Pink to colourless
19. Which of the following is a base but not an alkali?
(a) $NaOH$ (b) KOH (c) $Cu(OH)_2$ (d) $Mg(OH)_2$
20. Al_2O_3 is a:
(a) Acidic oxide (b) Neutral oxide (c) Basic oxide (d) Amphoteric oxide

BIOLOGY

21. In *Drosophila*, red eye is dominant over white eye character. When a homozygous red – eyed individual is crossed with a homozygous white – eyed individual and individuals of F_1 generation are intercrossed, 12 individuals are produced. White – eyed individuals of these will be:
- (a) Three (b) Six (c) Nine (d) Twelve
22. The number of autosomes in a human body cell is:
- (a) 46 (b) 44 (c) 22 (d) 23
23. Which one of the following is not one of the direct conclusions that can be drawn from Mendel's experiment?
- (a) Only one parental trait is expressed
(b) Two copies of each trait is inherited in sexually reproducing organism
(c) For recessive trait to be expressed both should be identical
(d) Natural selection can alter frequency of inherited trait
24. Which of the following statements are true about brain?
- (i) The main thinking part of the brain is hind brain
(ii) Centres of hearing, smell, memory, sight etc. are located in fore brain
(iii) Involuntary actions like salivation, vomiting, blood pressure are controlled by medulla in the hind brain
(iv) Cerebellum does not control posture and balance of body
- (a) (i) and (ii) (b) (i), (ii) and (iii) (c) (ii) and (iii) (d) (iii) and (iv)
25. The hormone that promotes cell division in plants is:
- (a) Auxin (b) Gibberellins (c) Cytokinin (d) Abscisic acid
26. What role does hydrochloric acid play in the stomach?
- (a) Breaks down carbohydrates (b) Breaks down proteins
(c) Emulsify fat (d) None of these
27. Which part of nephron allows the selective reabsorption of useful substances like glucose, amino acids, salts and water into the blood capillaries?
- (a) Tubule (b) Glomerulus
(c) Bowman's capsule (d) Ureter
28. Single circulation, i.e. blood flows through the heart only once during one cycle of passage through the body, is exhibited by which of the following:
- (a) Hyla, rana, draco (b) Whale, dolphin, turtle
(c) Labeo, chameleon, salamander (d) Hippocampus, exocoetus, anabas
29. What is the main conducting cell of phloem that forms the tube through which organic compounds are transported?
- (a) Sieve Tube Elements (b) Companion Cells
(c) Phloem Parenchyma (d) Phloem fibers

30. What is the purpose of veins?
- (a) To carry oxygenated blood away from the heart to the body's tissues and organs
 (b) To carry impure or deoxygenated blood from all parts of the body back to the heart
 (c) To carry impure or deoxygenated blood away from the heart to the body's tissues and organs
 (d) To connect arteries and veins
31. The loop of Henle is located in _____ part of kidneys.
- (a) Cortex (b) Medulla (c) Pelvis (d) Bowman's capsule
32. The process of Photosynthesis is:
- (a) Reductive, exergonic and catabolic (b) Reductive, endergonic and catabolic
 (c) Reductive, endergonic and anabolic (d) Reductive, exergonic and anabolic
33. The _____ is a network of tiny blood vessels located at the beginning of a nephron.
- (a) Renal calyces (b) Renal pyramid (c) Bowman's capsule (d) Glomerulus
34. The type of neuron that carries impulses from the central nervous system to the effector is called:
- (a) Sensory neuron (b) Motor neuron (c) Relay neuron (d) None of these
35. Which of the following is responsible for the regulation of sleep – wake up cycle in humans?
- (a) Cerebrum (b) Pineal gland (c) Pituitary gland (d) Thyroid gland

MATHEMATICS

36. Let $b_1, b_2, b_3, \dots, b_{19}$ be the first 19 terms of an arithmetic progression with $b_1 + b_8 + b_{12} + b_{19} = 224$. The sum of first 19 terms of the AP is:
- (a) 448 (b) 896 (c) 1064 (d) 1344
37. If the heights and radii of a cone and a hemisphere are same then the ratio of their volumes is
- (a) 1:2 (b) 2:3 (c) 1:3 (d) 1:1
38. Which term of the sequence 4, 9, 14, 19, is 124?
- (a) 20th (b) 15th (c) 10th (d) 25th
39. If α and β are the zeroes of the quadratic polynomial $f(x) = x^2 - x - 4$, then the value of $\frac{1}{\alpha} + \frac{1}{\beta} - \alpha\beta$ is
- (a) $\frac{15}{4}$ (b) $-\frac{15}{4}$ (c) 4 (d) 15
40. $(1 + \tan \theta + \sec \theta)(1 + \cot \theta - \operatorname{cosec} \theta)$ is equal to:
- (a) 0 (b) 2 (c) 1 (d) -1

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WISDOM SCHOLASTIC APTITUDE TEST (WSAT)

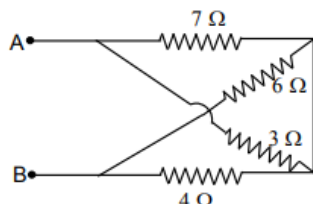
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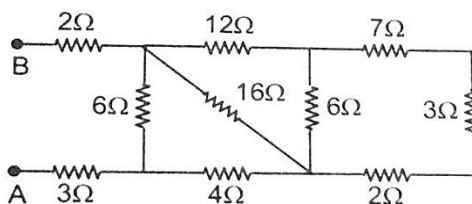
Sample Question Paper

PHYSICS

1. Find the equivalent resistance between A and B in the adjacent circuit.

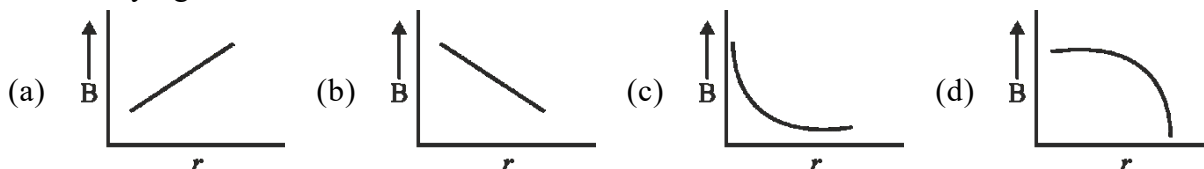


- (a) 4Ω (b) 4.5Ω (c) 10Ω (d) 20Ω
2. Find the equivalent resistance in ohm between points A and B in the following circuits:

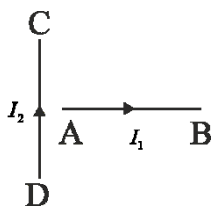


- (a) 5Ω (b) 15Ω (c) 9Ω (d) None of these
3. A wire has resistance 20Ω . It is bent in the form of a circle. The effective resistance between the two points on any diameter of the circle is:
- (a) 5Ω (b) 24Ω (c) 6Ω (d) 3Ω
4. A vertical wire carries a current in upward direction. An electron beam sent horizontally towards the wire will be deflected:
- (a) Towards right (b) Towards left (c) Upwards (d) Downwards

5. Which of the graphs shows the variation of magnetic induction B with distance r from a long wire carrying a current?

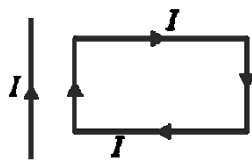


6. Wire AB carrying a current I_1 is placed near another long wire CD carrying current I_2 . If AB is free to move than it will move:



- (a) Towards left (b) Towards right (c) Upwards (d) Downwards

7. A rectangular loop carrying current I is situated near a long straight wire such that the wire is parallel to one of the sides of the loop and is in the plane of the loop. If a steady current I is established in the wire as shown in figure then loop will



- (a) Rotate about an axis parallel to the wire (b) Move towards the wire
 (c) Move away from the wire (d) Remain stationary
8. A straight wire of length 1.5 m and carrying a current of 2 A is placed in uniform magnetic field of induction 2T. The magnetic field is perpendicular to the length of the wire. The force on the wire is:
 (a) 2.4 N (b) 6 N (c) 3.0 N (d) 2.0 N
9. If the distance of the far point for a myopia patient is doubled, the focal length of the lens required to cure it will become
 (a) Half (b) Double
 (c) The same but a convex lens (d) The same but a concave lens
10. A man standing in front of a concave spherical mirror of radius of curvature 120 cm sees an erect image of his face four times its natural size. Then the distance of the man from the mirror is:
 (a) 180 cm (b) 300 cm (c) 240 cm (d) 45 cm

CHEMISTRY

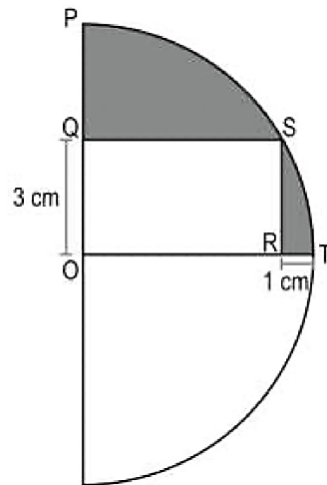
11. Sodium oxide changes the colour of china rose solution from:
 (a) Blue to Red (b) Green to Blue (c) Pink to Green (d) Pink to colourless
12. Lime water turns milky when carbon dioxide is passed through lime water due to formation of:
 (a) Calcium oxide (b) Calcium hydroxide
 (c) Calcium carbonate (d) Calcium hydrogen carbonate
13. When ethanol is heated in the presence of conc. Sulphuric acid, formation of ethane takes place. During this reaction sulphuric acid act as:
 (i) Catalyst (ii) Dehydrating agent (iii) Oxidising agent (iv) Reducing agent
 (a) Only (i) (b) Both (i) and (ii) (c) (i), (ii) and (iii) (d) None of these
14. Identify the incorrect statement:
 (a) Humans tooth enamel is madeup of calcium hydroxyl apatite
 (b) Tooth decay begins when pH of mouth falls below 5.5
 (c) A solution having a pH of 3 is life threatening for aquatic beings
 (d) HCl gas can change dry blue litmus into red
15. Identify the incorrect match:
 (a) $HgS \rightarrow$ Cinnabar (b) $PbS \rightarrow$ Galena
 (c) $ZnS \rightarrow$ Zincite (d) $Cu_2S \rightarrow$ Copper glance

16. On heating ferrous sulphate, it decomposes to give _____ product.
 (a) 1 (b) 2 (c) 3 (d) 4
17. What is the chemical formula of baking soda?
 (a) $Na_2CO_3 \cdot 10H_2O$ (b) $NaHCO_3$ (c) Na_2CO_3 (d) $NaOH$
18. The milkiness produced by passing CO_2 through lime water is due to the formation of
 (a) Calcium carbonate (b) Calcium bicarbonate
 (c) Calcium oxide (d) Calcium carbide
19. Which of the following metal can liberate hydrogen gas with very dilute nitric acid?
 (a) Manganese (b) Iron (c) Copper (d) Silver
20. CO is a:
 (a) Acidic oxide (b) Neutral oxide (c) Basic oxide (d) Amphoteric oxide

MATHEMATICS

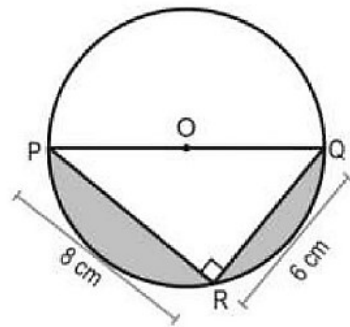
21. The number of factors of $n = 2^{15} \times 3^{10} \times 5^6$ such that either they are perfect cube or perfect square but not both.
 (a) 252 (b) 216 (c) 214 (d) 900
22. Which of the following numbers can be written as a non – terminating but recurring decimal?
 (a) 9 (b) $\frac{43}{8}$ (c) $\sqrt{6}$ (d) $\frac{5}{12}$
23. What is the value of q if $\frac{p}{2} + 3q = 6$ and $2p - 2q = 10$?
 (a) 1 (b) 4 (c) 6 (d) 16
24. 1245 is a factor of the numbers p and q . Which of the following will ALWAYS have 1245 as a factor?
 (i) $p + q$ (ii) $p \times q$ (iii) $p \div q$
 (a) Only (ii) (b) Only (i) and (ii) (c) Only (ii) and (iii) (d) All (i), (ii) and (iii)
25. ABCD is a parallelogram such that P, Q, R and S are points on sides AB, BC, CD and DA respectively such that $AP = DR$. If the area of the parallelogram ABCD is 16 cm^2 , then the area of the quadrilateral PQRS is:
 (a) 12 (b) 6 (c) 8 (d) 10
26. If $\sin \theta - \cos \theta = \frac{3}{5}$, then $\sin \theta \cos \theta =$
 (a) $\frac{16}{25}$ (b) $\frac{9}{16}$ (c) $\frac{9}{25}$ (d) $\frac{8}{25}$
27. Let $\triangle ABC$ be right angled triangle in which $A(0, 2)$ and $B(2, 0)$. Then the coordinates of C can be
 (a) (0, 0) (b) (2, 2) (c) Either (a) or (b) (d) None of these
28. The outer curved surface area of a cylindrical metal pipe is 1100 m^2 and the length of the pipe is 25 m. The outer radius of the pipe is
 (a) 8 m (b) 9 m (c) 7 m (d) 6 m

29. Three solid cubes have a face diagonal of $4\sqrt{2}$ cm each. Three other solid cubes have a face diagonal of $8\sqrt{2}$ cm each. All the cubes are melted together to form a cube. Find the side of the cube formed (in cm).
- (a) $\sqrt[3]{324}$ (b) $\sqrt[3]{576}$ (c) 12 (d) 24
30. A teacher asks three students to complete the following statement about the nature of the roots of a quadratic equation. If $q^2 - 4pr > 0$, the roots of the quadratic equation $px^2 + qx + r = 0$ will be:-
 Zain answers, "Always positive"
 Vipul answers, "positive, if p , q and r are positive".
 Suman answers, "Negative, if p , q and r are positive".
 Who answered correctly?
- (a) Zain (b) Vipul (c) Suman (d) None of them
31. Which one of the following is equal to the given expression: $\frac{\cot \theta \sec^2 \theta}{\operatorname{cosec} \theta}$
- (a) $\sec \theta$ (b) $\operatorname{cosec} \theta$ (c) $(\cot^2 \theta)(\sec \theta)$ (d) $(\cot^2 \theta)(\operatorname{cosec} \theta)$
32. The marks obtained by a set of students in an exam are recorded in a grouped frequency table. The maximum number of students are found to be in the range of (70 – 80) marks.
- If the number of students in the ranges before and after the (70 – 80) range are equal, which of the following is the mode of the data?
- (a) 70 marks (b) 75 marks (c) 80 marks
 (d) mode cannot be found as frequency is not given
33. $P = (2)(4)(6)\dots(20)$ and $Q = (1)(3)(5)\dots(19)$. What is the HCF of P and Q?
- (a) $3^3 \times 5 \times 7$ (b) $3^4 \times 5$ (c) $3^4 \times 5^2 \times 7$ (d) $3^3 \times 5^2$
34. If the LCM of the polynomials $f(x) = (x+1)^5 (x+2)^a$ and $g(x) = (x+1)^b (x+2)^a$ is $(x+1)^a (x+2)^b$, then the minimum value of $a + b$ is
- (a) 10 (b) 14 (c) 15 (d) cannot say
35. Which of these numbers can be expressed as a product of two or more prime numbers?
- (i) 15 (ii) 34568 (iii) (15×13)
- (a) Only (ii) (b) Only (iii)
 (c) Only (i) and (ii) (d) All (i), (ii) and (iii)
36. Two identical fair dice have numbers 1 to 6 written on their faces. Both are tossed simultaneously. What is the probability that the product of the numbers that turn up is 12?
- (a) $\frac{1}{36}$ (b) $\frac{1}{9}$ (c) $\frac{1}{6}$ (d) $\frac{1}{3}$
37. What is the remainder when the polynomial $p(x) = x^{200} - 2x^{199} + x^{50} - 2x^{49} + x^2 + x + 1$ is divided by $(x-1)(x-2)$?
- (a) 1 (b) 7 (c) $2x+1$ (d) $6x-5$
38. In the figure below $RT = 1$ cm and $OQ = 3$ cm.



- (a) $(12.5\pi - 12)cm^2$ (b) $(6.25\pi - 12)cm^2$ (c) $(12.5\pi - 15)cm^2$ (d) $(6.5\pi - 15)cm^2$

39. In the figure given below, O is the centre of the circle, PR and RQ are chords of the circle. The radius of the circle is 5 cm. $PR = 8$ cm, $QR = 6$ cm and $\angle PRQ = 90^\circ$. What is the approximate area of the shaded region? (Note: The figure is not to scale)



- (a) $\left(\frac{25}{4}\pi - 24\right)cm^2$ (b) $\left(\frac{25}{2}\pi - 24\right)cm^2$ (c) $\left(\frac{25}{4}\pi\right)cm^2$ (d) $\left(\frac{25}{2}\pi\right)cm^2$

40. A solid sphere is cut into identical pieces by three mutually perpendicular planes passing through its centre. Increase in total surface area of all the pieces with respect to the total surface area of the original sphere is:

- (a) 250% (b) 175% (c) 150% (d) 125%

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