WISDOM WORLD SCHOOL, KURUKSHETRA

Wisdom Scholarship-cum-Admission Test (WSAT)

for

Admission to Grade 11 (UDAAN Batch)

Date of Examination : **29/12/2024**

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	**Light (Reflection and Refraction):** Spherical Mirror (concave and convex mirror), refraction through glass slab, Apparent depth and height, lens formula, lens maker formula, combination of lens **Human eye and Colourful World :** Human Eye, atmospheric refraction, scattering of light, defects of vision and their correction, prism and rainbow formation **Current Electricity:** Electric Current, Potential Difference, ohms law, kirchhoff's law, series and parallel grouping of resistors and joules law of heating.
CHEMISTRY	Acid, Base and Salt, Metals and Non Metals, Carbon and its Compounds
BIOLOGY	Life Processes, Control and Coordination, Our Environment, How do Organisms Reproduce?, Heredity.
MATHEMATICS	Triangles, Quadrilaterals, Circles, Real Numbers, Polynomials, Pair of Linear Equations in Two Variables, Quadratic Equations, Arithmetic Progressions, Triangles, Coordinate Geometry, Introduction to Trigonometry, Some Applications of Trigonometry, Circles, Areas Related to Circles, Surface Areas and Volumes, Statistics, Probability
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. Work done in time t on a body of mass m which is accelerated from rest to a speed υ in time t_1 as a function of time t is given by-

(a) $\frac{1}{2}m\frac{\upsilon}{t_l}t^2$ (b) $m\frac{\upsilon}{t_l}t^2$ (c) $\frac{1}{2}m\,t^2$ (d) $\frac{1}{2}m\,\frac{\upsilon^2}{t_1^2}t^2$

2. A body travels through a distance of 10 m on a straight line, under the influence of 5 N. If the work done by the force is 25 J, the angle between the force and displacement is-

(a) 0^0 (b) 30^0 (c) 60^0 (d) 90^0

3. A convex lens of focal length 1 meter is place in contact with another concave lens of equal focal length. What is the focal length of the new lens so formed?

(a) +1 m (b) Infinity (c) +2 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 3*f*. 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) $-2D$

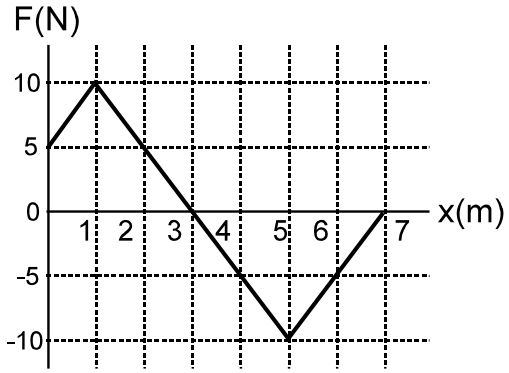
8. The stars twinkle at night because:

(a) They emit energy (b) Of diffraction (c) Of refraction (d) Of reflection

9. The work done in pushing a block of mass 10 kg from bottom to the top of a frictionless inclined plane 5m long and 3m high is- ($g = 9.8$ m/sec^2)

(a) 392 J (b) 294 J (c) 98 J (d) 0.98 J

10. The figure shows the force (F) versus displacement(s) graph for a particle of mass m=2kg initially at rest



(i) The maximum speed of the particle occurs at x = ... m

(ii) The maximum speed of the particle is ..... ms^{-1}

(iii) The particle once again has its speed zero at x = ... m

(a) 5, 3, 6 (b) 3, 4.18, 6 (c) 6, 5, 3 (d) 4, 5, 6

CHEMISTRY

11. 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

12. Copper displaces which of the following salts?

(a) $ZnSO_4$ (b) $AgNO_3$ (c) $NiSO_4$ (d) $FeSO_4$

13. On heating calcium carbonate decomposes to give _____ product.

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

14. 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

15. Which of the following is a base but not an alkali?

(a) $NaOH$ (b) KOH (c) $Cu(OH)_2$ (d) $Mg(OH)_2$

16. Al_2O_3 is a:

(a) Acidic oxide (b) Neutral oxide (c) Basic oxide (d) Amphoteric oxide

17. Metal oxide turns Red litmus solution to:

(a) Blue (b) Yellow (c) Pink (d) White

18. CO_2 is a/an

(a) Basic oxide (b) Acidic oxide

(c) Amphoteric oxide (d) Neutral oxide

19. A solution whose pH is 3 can change
(a) Red litmus into Blue
(b) Blue litmus into Blue
(c) Blue litmus into Red
(d) Red litmus into Black

20. Acid found in rancid butter is:
(a) Butyric acid (b) Butyrous acid (c) Formic acid (d) Acetic acid

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, sigh 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. Evaluate the sum of real roots for equation: $\frac{x^3+x}{\left(x^2-x+1\right)^2}=\frac{10}{9}$
(a) 0 (b) –1 (c) $\frac{2}{7}$ (d) $\frac{5}{2}$

37. The number of factors of $n=2^{15}\times3^{10}\times5^6$ such that either they are perfect cube or perfect square but not both.
(a) 252 (b) 216 (c) 214 (d) 900

38. In ΔABC, If AD, BE, CF are the medians and $\frac{x}{y}(AB+BC+CA) < AD+BE+CF$, then the value of $x+y$ is: (where $x, y \in N$)

(a) 8 (b) 9 (c) 7 (d) 10

39. Let $b_1, b_2, b_3, ..., b_{19}$ 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

40. 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) $6x-5$

REASONING

41. $11\frac{1}{9}, 12\frac{1}{2}, 14\frac{2}{7}, 16\frac{2}{3}, ?$

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

42. 3, 10, 29, 66, 127, ?

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

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

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

44. 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

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

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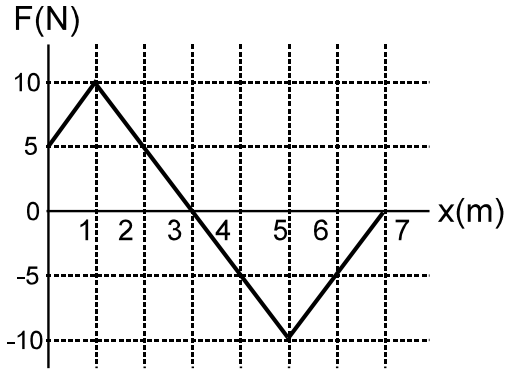

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MATHEMATICS

21. If $\left(7+4\sqrt{3}\right)^{x^2-8}+\left(7-4\sqrt{3}\right)^{x^2-8}=14$, then the sum of all solutions is

(a) 0 (b) 1 (c) 2 (d) 3

22. $P=(2)(4)(6)....(20)$ and $Q=(1)(3)(5)....(19)$. What is the HCF of P and Q?

(a) $3^3\times5\times7$ (b) $3^4\times5$ (c) $3^4\times5^2\times7$ (d) $3^3\times5^2$

23. 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

24. The value λ, if the line $3x-\lambda y+6=0$ passes through the point (–3, 4) is

(a) $\frac{3}{4}$ (b) $\frac{-3}{4}$ (c) $\frac{4}{3}$ (d) $\frac{-4}{3}$

25. Let ΔABC 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

26. Evaluate the sum of real roots for equation: $\frac{x^3+x}{\left(x^2-x+1\right)^2}=\frac{10}{9}$

(a) 0 (b) –1 (c) $\frac{2}{7}$ (d) $\frac{5}{2}$

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(a) 1 (b) 7 (c) $2x+1$ (d) $6x-5$

31. The value of $\sqrt[3]{\frac{4}{9}}-\sqrt[3]{\frac{2}{9}}+\sqrt[3]{\frac{1}{9}}$ is

(a) $\frac{1}{\sqrt[3]{3}}$ (b) $\sqrt[3]{3}$ (c) $\frac{\sqrt[3]{3}}{\sqrt[3]{2}+1}$ (d) $\frac{3}{\sqrt[3]{2}+1}$

32. If degree of both polynomials $f(x)$ and $[f(x)+g(x)]$ is 19, then degree of $g(x)$ can be

(a) 19 (b) 9 (c) 6 (d) any one of these

33. Which term of the sequence 4, 9, 14, 19, …. is 124?

(a) 20^{th} (b) 15^{th} (c) 10^{th} (d) 25^{th}

34. 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

35. The pair of equations $3^{x+y}=81, 81^{x-y}=3$ has

(a) no solution (b) infinitely many solution

(c) the solution is $x=2\frac{1}{8}, y=1\frac{7}{8}$ (d) x = 2, y = 3

36. The graph of $y=x^3-4x$ cuts x – axis at $(-2,0)$, $(0,0)$ and $(2,0)$. The zeros of x^3-4x are:

(a) 0,0,0 (b) –2,2,2 (c) –2,0,2 (d) –2,–2,2

37. If α,β,γ are the zeros of the polynomial $f(x)=x^3-5x^2-2x+24$ such that $\alpha\beta=12$, then

(a) $\alpha+\beta=7$ (b) $\alpha-\beta=\pm1$ (c) $\gamma=-2$ (d) All of these

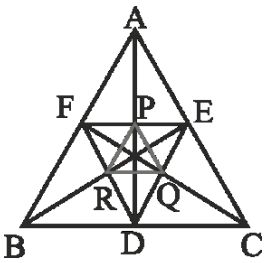
38. The three consecutive vertices of a parallelogram are $(a+b,a-b)$; $(2a+b,2a-b)$; $(a-b,a+b)$, the fourth vertex is:

(a) (a,b) (b) (b,b) (c) $(-b,b)$ (d) $(-a,-b)$

39. Solve the equation in R : $\frac{x^2+1}{x+1}=\sqrt{x^2-2x+3}$

(a) 3 only (b) $1+\sqrt{2}$ only (c) $\sqrt{2}-1$ only (d) Both (b) and (c)

40. In figure AD, BE and CF are the medians of ΔABC. Points P, Q and R are the mid – points of AD, CF and BE respectively. If the area of the triangle PQR is 243 sq. units, then what is the area of ΔABC. (in sq. unit)



(a) 2226 (b) 2023 (c) 2030 (d) 3888

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