YUVODAYA SCHOLARSHIPS & ADMISSION TEST (YSAT-2025)

MOCK

GENERAL INSTRUCTIONS OF SAMPLE QUESTION PAPER

1. *Duration of test is 2 Hours.*
2. *The test booklet consists of 60 questions [Science–45 Qns. & Mathematics–15 Qns.]*
3. *The maximum marks are (240).*
4. *For each question you will be awarded 4 marks if you darken all the bubble(s) corresponding to only the correct answer(s) and zero mark if no bubbles are darkened. In all other cases minus one (–1) mark will be awarded.*
5. *After completion of examination submit the OMR sheet and question paper to the invigilator.*
6. *There is no section in question paper. Attend the question from Qns. No. 01 to 60 respectively.*
7. *Not allowed in any electronic device at the Exam centre.*

INSTRUCTIONS FOR FILLING THE OMR SHEET

1. *This sheet should not be folded or crushed.*
2. *Use only blue/black ball point pen to fill the circles.*
3. *Circles should be darkened completely and properly.*
4. *Cutting and erasing on this sheet is not allowed.*
5. *Do not use any stray marks on the sheet.*
6. *Do not use marker or white fluid to hide the mark.*

WRONG METHOD ***CORRECT METHOD***

NAME OF THE STUDENT : _____

FATHER'S NAME : _____

NAME OF THE SCHOOL : _____

MOBILE NO. 1 (W) : _____

MOBILE NO.2 _____

EMAIL ID _____

Exam Place: Bhubaneswar, Balangir, Berhampur, Sambalpur, Bhawanipatna

(PHYSICS)

1. A concave lens of focal length forms an image which is n times the size of the object. The distance of the object from the lens is

(1) $(1 - n)f$ (2) $(1 + n)f$

(3) $\left(\frac{1+n}{n}\right)f$ (4) $\left(\frac{1-n}{n}\right)f$

2. Amount of light entering into the camera depends upon

(1) Focal length of objective lens

(2) Product of focal length and diameter of objective lens

(3) Distance of objective from camera

(4) Aperture setting of the camera

3. The image of an object placed on the principal axis of a concave mirror of focal length 12 cm is formed at a point which is 10 cm more distance from the mirror than the object. The magnification of the image is

(1) 2 (2) 1.5

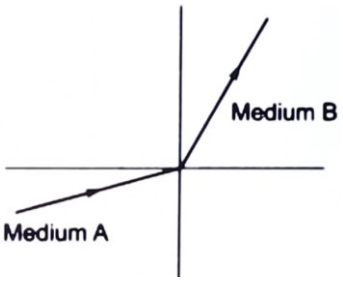
(3) 1 (4) 2.5

4. A candle flame 3 cm high is placed at a distance of 3 m from a wall. How far from the wall must a concave mirror be placed in order that it may form an image of the flame 9 cm high on the wall?

(1) 450 cm (2) 150 cm

(3) 225 cm (4) 300 cm

5. A light ray enters from medium A to medium B as shown in figure. The refractive index of medium B relative to A will be



(1) Greater than unity

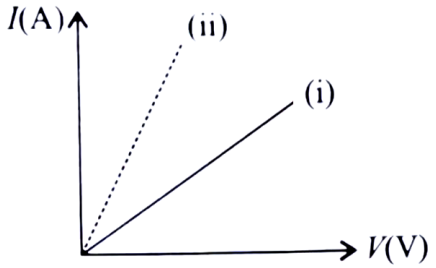
(2) Less than unity

(3) Equal to unity

(4) Zero

6. The given figure shows the I-V curve (i) for a nichrome wire of given length and cross-section.

Which of the following will yield the curve (ii)?



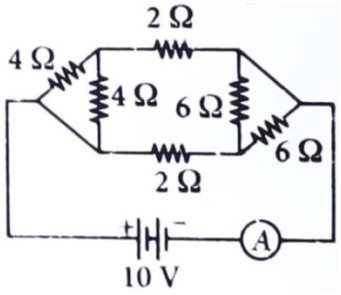
(1) Increase the length of nichrome wire

(2) Decrease the thickness of nichrome wire

(3) Replace the nichrome wire with a similar Copper wire

(4) None of these

7. In the circuit shown, the ammeter reading is



(1) 2/5 A (2) 5/3 A

(3) 3/7 A (4) 4/5 A

8. If a wire of resistance 20 Ω is covered with ice and a voltage of 210 V is applied across the wire, then the rate of the melting of ice is

(1) 0.85 g/s (2) 1.92 g/s

(3) 6.56 g/s (4) 5.65 g/s

9. The amount of heat produced in a conductor is

(1) Directly proportional to the current flowing through it

(2) Inversely proportional to the current flowing through it

(3) Directly proportional to the square of the current flowing through it

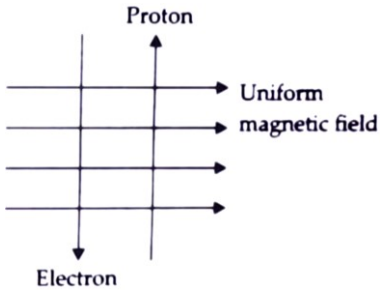
(4) Inversely proportional to the square of current flowing through it.

10. 1 horse power is equal to

(1) 700 W (2) 726 W

(3) 736 W (4) 746 W

11. A uniform magnetic field exists in the plane of paper point from left to right as shown in figure. In the field, an electron and a proton move as shown. The electron and the proton experience forces.



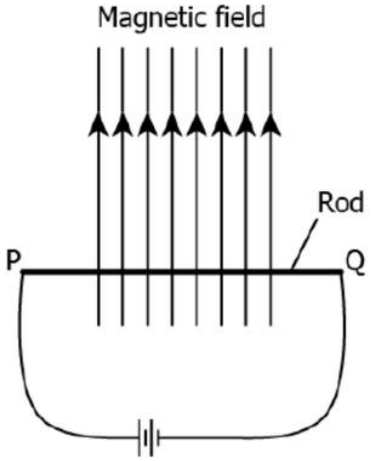
(1) Both pointing into the plane of paper

(2) Both pointing out of the plane of paper

(3) Pointing into the plane of paper and out of the plane of paper respectively

(4) Pointing opposite and along the direction of the uniform magnetic field respectively.

12. A metal rod PQ is placed in the magnetic field. The ends of the rod are connected to a battery using wires.



Where will the rod move?

(1) Upward (2) Downwards

(3) Into the field (4) Out of the field

13. A charged particle is moving along a magnetic field line. The magnetic force on the particle is

(1) Along its velocity

(2) Opposite to its velocity

(3) Perpendicular to its velocity

(4) Zero

14. An electric motor converts

(1) Electrical energy into heat energy

(2) Electrical energy into mechanical energy

(3) Mechanical energy into electrical energy

(4) Mechanical energy into heat energy

15. Electric supply of a house is through a 15 A fuse. When a 2000 W heater is used in this house, how many 100 W bulbs can be used simultaneously? The supply is at 220 V, and the heater and bulbs are rated for 220 V.

(1) 12 (2) 13

(3) 14 (4) 15

(CHEMISTRY)

16. Avogadro's number represents the number, of atoms in-

(1) 12 g of C^{12}

(2) 320 g of sulphur

(3) 32 g of oxygen

(4) 12.7 g of iodine

17. Acetic acid was added to a solid X kept in a test tube. A colourless and odourless gas was evolved. The gas was passed through lime water which turned milky. It was concluded that

(1) solid X is sodium hydroxide and the gas evolved is CO_2

(2) solid X is sodium bicarbonate and the gas evolved is CO_2

(3) solid X is sodium acetate and the gas evolved is CO_2

(4) solid X is sodium chloride and the gas evolved is CO_2

18. Correct statement among the following.

(1) Homologous have same chemical & physical properties.

(2) Homologous have same general formula & physical properties.

(3) Homologous have different chemical properties with different general formula.

(4) Homologous have same chemical properties with same general formula.

19. Which of the following element is a member of third period?

(1) K (2) Ca

(3) Ar (4) Sc

20. For reaction $N_2(g)+3H_2(g)\longrightarrow 2NH_3(g)$ 6 moles of H_2 is taken with excess of N_2 gas. Mass of ammonia gas produced is

(1) 51 gm (2) 34 gm

(3) 17 gm (4) 68 gm

(BIOLOGY)

21. The enzyme responsible for the digestion of proteins in the small intestine is:

(1) Pepsin (2) Trypsin

(3) Amylase (4) Lipase

22. In which group of the organisms the food material is broken down outside the body ?

(1) Mushroom, green plants, amoeba

(2) Yeast, mushroom, bread mould

(3) Paramecium, amoeba, cuscuta

(4) Cuscuta, lice, tapeworm

23. Select the correct statement -

(1) Hetrotrophs make their food

(2) Heterotrophs utilize solar energy to make food

(3) Heterotrophs do not make their own food

(4) Heterotrophs are capable of converting carbon dioxide and water into carbohydrates

24. Which of the following is commonly known as 'birth hormone'?

(1) Prolactin

(2) Oxytocin

(3) ADH

(4) FSH

25. A big tree falls in a forest, but its roots are still in contact with the soil. The branches of this fallen tree grow straight up (vertically). This happens in response to:

(1) Water and light

(2) Water and minerals

(3) Gravity and water

(4) Light and gravity

26. Electrical impulse travels in a neuron from

(1) Dendrite axon ? axonal end ? cell body

(2) Cell body ? dendrite ? axon ? axonal end

(3) Dendrite ? cell body ? axon ? axonal end

(4) Axonal end ? axon ? cell body ? dendrite

27. Growth hormone is produced by

(1) Adrenal (2) Pituitary

(3) Pancreas (4) Thyroid

28. The main function of the plant hormone called abscisic acid is to:

(1) Increase the length of cells

(2) Promote cell division

(3) Inhibit growth

(4) Promote growth of stem and roots

29. Made up of only nucleic acid and proteins are:

(1) Bacteria (2) Chloroplast

(3) Viruses (4) Prions

30. A feature of reproduction that is common to Amoeba, Yeast and Spirogyra is that

(1) they reproduce asexually

(2) they are all unicellular

(3) they reproduce only sexually

(4) they are all multicellular

31. Tubectomy is carried out by blocking the

(1) oviduct (2) uterus

(3) cervix (4) vagina

32. Variations occur as a result of

(1) asexual reproduction

(2) vegetative propagation

(3) sexual reproduction

(4) regeneration

33. The sequence of gradual changes which takes place in the primitive organisms over millions of years in which new species are produced is known as

(1) Evolution (2) Heredity

(3) Generation (4) Inheritance

34. Human teeth and elephant's tusk are

(1) Analogous organs

(2) Vestigeal organs

(3) Homologous organs

(4) Rudimentary organs

35. If a normal cell of human body contains 46 pairs of chromosomes then the numbers of chromosomes in a sex cell of a human being is most likely to be:

(1) 60 (2) 23

(3) 22 (4) 40

(MATHEMATICS)

36. If $(3^3)^2 = 9^x$ then $5^x = ?$

(1) 25 (2) 125

(3) 625 (4) 75

37. Find the value of K for which the given equation has real and equal roots $(K-12)x^2 + 2(K-12)x + 2 = 0$

(1) $K = 14$ (2) $K = 13$

(3) $K = 12$ (4) $K = 10$

38. The least positive value of K, for which the quadratic equation $2x^2 + Kx - 4 = 0$ has rational roots is ___ .

(1) $K = 6$ (2) $K = 2$

(3) $K = 3$ (4) $K = 4$

39. Two years ago, a father was five times as old as his son. Two years later his age will be more than 3 times the age of son. Find the present ages of father and son.

(1) 32, 10 (2) 42, 10

(3) 20, 30 (4) None

40. How many terms are there in sequence 3, 6, 9, 12…… 111?

(1) 37 (2) 36

(3) 111 (4) 12

41. How many terms of the series 54, 51, 48….. be taken so that their sum is 513 ?

(1) 19 (2) 10

(3) 11 (4) 20

42. Distance of (–1, 7) from x-axis ?

(1) 1 (2) 7

(3) 6 (4) 8

43. If the product of the zeroes of the polynomial $ax^2 - 6x - 6$ is 4. Find value of a ?

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

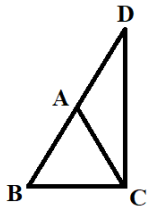
(3) $\frac{1}{2}$ (4) 1

44. If A(–1, 3), (1, –1) and C(5, 1) are the vertices of a tringle ABC. Find the length of the median though A.

(1) 2 (2) 12

(3) 3 (4) 5

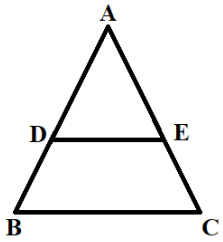
45. ΔABC is an isoscales triangle is which $AB = AC$ side BA is produced to D such that $AD = AC$. The $\angle BCD = ?$



(1) 30^o (2) 20^o

(3) 90^o (4) 100^o

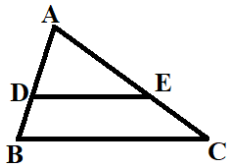
46. $DE \parallel BC$ if $AD = x$, $DB = x - 2$, $AE = x + 2$ and $EC = x - 1$ then $x = ?$



(1) $x = 1$ (2) $x = 2$

(3 $x = 3$ (4) $x = 4$

47. If AD = 6 cm, DB = 9 cm, AE = 8 cm and EC = 12 cm and $\angle ADE = 48^o$ then $\angle ABC = ?$



(1) 48^o (2) 60^o

(3) 30^o (4) 100^o

48. If a_p be the pth term of *A.P.* 3, 15, 27, …., such that $a_p - a_{50} = 180$, then $p =$

(1) 68 (2) 65

(3) 66 (4 67

49. If $\sin A + \sin^2 A = 1$ then the value of the expression $\cos^2 A + \cos^4 A$ is _____ .

(1) 1 (2) $\frac{1}{2}$

(3) 2 (4) 3

50. If 3 is the least prime factor of m and 5 is the least prime factor of *n*, then the least prime factor of $(m + n)$ is

(1) 11 (2) 2

(3) 3 (4) 5

51. If the HCF of 85 and 153 is expressible in the form $85n - 153$, then the value of *n* is

(1) 3 (2) 2

(3) 4 (4) 1

52. If $x = 2\sin^2\theta$ and $y = 2\cos^2\theta + 1$, then $x + y$ is equal to

(1) 3 (2) 2

(3) 1 (4) 1/2

53. If $\tan\alpha + \cot\alpha = 2$, then $\tan^{2020}\alpha + \cot^{2020}\alpha =$

(1) 0 (2) 2

(3) 2020 (4) 2^{2020}

54. $\sqrt{\frac{1+\sin\theta}{1-\sin\theta}}$ is equal to

(1) $\sec\theta + \tan\theta$ (2) $\sec\theta - \tan\theta$

(3) $\sec^2\theta + \tan^2\theta$ (4) $\sec^2\theta - \tan^2\theta$

55. In triangles *ABC* and *DEF*, $\angle B = \angle E, \angle F = \angle C$ and *AB* = 3 *DE*. Then, the two triangles are

(1) congruent but not similar

(2) similar but not congruent

(3) neither congruent nor similar

(4) congruent as well as similar

56. If $\Delta PQR - \Delta ABC; PQ = 6$ cm , $AB = 8$ cm and the perimeter of ΔABC is 36 cm, then perimeter of ΔPQR is

(1) 20.25 cm (2) 27 cm

(3) 48 cm (4 64 cm

57. If the sum of *n* terms of an *A.P.* is $S_n = 3n^2 + 4n$, then common difference of the *A.P.* is

(1) 7 (2) 5

(3) 8 (4) 6

58. The sum of the first *n* odd natural numbers is

(1) $2n$ (2) $2n + 1$

(3) n^2 (4) $n^2 - 1$

59. If the polynomial $2x^3 + ax^2 + 3x - 5$ and $x^3 + x^2 - 2x + a$;leave the same reminder when divided by $x - 2$. Find the value of *a* ?

(1) 25 (2) 3

(3) $\frac{25}{3}$ (4) None

60. If $\cos A = \frac{4}{5}$ then the value of $\tan A$ is ____ .

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

(3) $\frac{4}{3}$ (4) $\frac{5}{3}$

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SPACE FOR ROUGH

SPACE FOR ROUGH