



Name of the Candidate

**Test Date** 

Time Allowed: 1 Hour

Max. Marks : 160



VIDYAPEETH SCHOLARSHIP-CUM-ADMISSION TEST

# **TEST BOOKLET NO.**



## **10th to 11th CLASS MOVING STUDENTS**

### **GENERAL INSTRUCTIONS:**

(i) There are four sections in this paper consisting PCMB having 40 questions.

- (ii) For each correct answer 4 marks will be awarded and for each incorrect answer, 1 marks will be deduced.
- (iii) Mark only one correct answer out of four alternatives.
- (iv) Use Blue/Black Ball Point Pen only for writing particulars/ or any marking.
- (v) Use of calculator is not allowed.
- (vi) Darken the circles in the space provided only.
- (vii) Use of white fluid or any other material which damages the answer sheet, is not permitted.

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#### Choose the correct Option

#### **MATHEMATICS (10 QUESTIONS)**

#### (Quadratic Equations, Circles, Surface Area and Volumes, Arithmetic Progression)

- 1. The sum of n terms of two A.P's are in the ratio of (7n+1): (4n+27). The ratio of their  $11^{th}$  terms is – a. 2:3 b. 4:3
  - c. 5:4 5:6 d.
- 2. If  $a_1, a_2, a_3, \dots, a_n$  are in A.P. and  $a_i > 0$  for all I, then:

$$\frac{1}{\sqrt{a_1} + \sqrt{a_2}} + \frac{1}{\sqrt{a_2} + \sqrt{a_3}} + \dots + \frac{1}{\sqrt{a_{n-1}} + \sqrt{a_n}} =$$
a. 
$$\frac{n}{\sqrt{a_1} + \sqrt{a_n}}$$
b. 
$$\frac{n}{\sqrt{a_n} - \sqrt{a_1}}$$
c. 
$$\frac{n-1}{\sqrt{a_1} + \sqrt{a_n}}$$
d. none of these

- 3. In the adjoining figure 'O' is the centre of the circle of the circle and PQ, PR and ST are the three tangents.  $\angle QPR = 50^\circ$ , then the value of  $\angle SOT$  is:
  - a. 30° b. 75° 0 M 50° 65° c. Can't be determined d.
- 4. ABC is an isosceles triangle and AC, BC are the tangents at M and N respectively. DE is the diameter of the circle.  $\angle ADP = \angle BEQ = 100^\circ$ . What is value of  $\angle PRD$ ?

a. 60° 50° b. 20° c. Can't be determined d. 0

5. In piece of paper is in the form of a right angle triangle in which the ratio of base and perpendicular is 3: 4 and hypotenuse is 20 cm. What is the volume of the biggest cone that can be formed by taking right angle vertex of the paper as the vertex of the cone? a.  $45.8 \text{ m}^3$ b. 56.  $1 \text{ m}^3$ c. 61.5 m<sup>3</sup>  $48 \text{ m}^{3}$ 

d.

6. A cubical cake is cut into several smaller cubes by dividing each edge in 7 equal parts. The cake is cut from the top along the two diagonals forming four prisms. Some of them get cut and rest remained in the cubical shape. A complete cubical (smaller) cake was given to adults and the cut off part of a smaller cake is given to a child get the cake? b. 448

d. 456

- a. 343 367 c.
- 7. In a bullet the gun powder is to be filled up inside the metallic enclosure. The metallic enclosure is made up of a cylindrical base and conical top with the base of radius 5 cm. The ratio of height of cylinder and cone is 3: 2. A cylindrical hole is drilled through the metal solid with height two - third the height of metal solid. What should be the radius of the hole, so that the volume of the hole (in which gun powder is to be filled up) is one third the volume of metal solid after drilling?

a. 
$$\sqrt{\frac{88}{5}}$$
 cm b.  $\sqrt{\frac{55}{8}}$  cm c.  $\frac{55}{8}$  cm d.  $33\pi$  cm

A single reservoir supplies the petrol to the whole city, while the reservoir is fed by a single pipeline filling the reservoir with the stream of uniform volume. When the reservoir is full and if 40000 litres of petrol is used is used daily, the supply fails in 90 days. If 32000 litres of petrol is used daily, the supply fails in 60 days. How much petrol can be used daily without the supply ever failing?

9. In town, 
$$\frac{2}{3}$$
 of men are married to  $\frac{3}{7}$  of the women. In

the town total population is more than 1000. If all marriages happen within the town. The smallest possible number of total population is (assume there are only adults in the town) a.

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c.

2

MATHS/SCEINCE



V-SAT-2022

10.	The quadratic equation $3x^2 + 2(a^2 + 1)x + a^2 - 3a + 2 = 0$	a.	$(-\infty, 0)$	b.	(-∞,1)
	0 possesses roots of opposite sign then a lies in:	c.	(1,2)	d.	(4,9)

#### **PHYSICS (10 QUESTIONS)** (CURRENT ELECTRICITY, MAGNETIC EFFECT OF ELECTRIC CURRENT)

- 11. A current of 1 A is drawn by a filament of an electric bulb, Number of electrons passing through a crosssection of the filament in 16 seconds would be roughly
  - 10<sup>10</sup> a. 10<sup>20</sup> b. c. 10<sup>18</sup> 10<sup>23</sup> d.
- 12. What is the minimum resistance which can be made using five resistors each of (1/5)  $\Omega$ ?

a.	(1/5) Ω	b.	(1/25) Ω
	(		(

- c. (1/10)Ω d. 25Ω
- 13. Two resistors of resistance 2  $\Omega$  and  $4\Omega$  when connected to a battery will have
  - a. same current flowing through then when connected in parallel
  - b. Same current flowing through them when connected in series
  - c. same potential difference across them when connected in series
  - d. different potential difference across them when connected in parallel
- 14. The equivalent resistance between the terminals Xand Y of the circuit is



15. If in the circuit, power dissipation is 150 W, then R



16. Our students plotted the sketch of the patterns of magnetic field lines representing the magnetic field around a current carrying straight wire as shown in figures A,B,C and D. Which of the sketches is correct?



- 17. A circular loop is suspended in air as shown in figure. When the loop is seen from above, current flows anti clock wise and when seen from below. current flows clock wise. His loop behaves as a magnet. The N - pole of this magnet is one
  - a. the upper face
  - b. lower face
  - the lower face if current is large C.
  - d. upper face if current is large
- 18. A soft iron bar is enclosed by a coil of insulated copper wire as shown in figure. When the plug of the key is closed, the face B of the iron bar marked as



C.

d.

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3

A FORUM For :-JEE/AIIMS/NEET-UG/NTSE/KVPY

19.	A current flows in a conductor from east to west.	20. An electron is travelling horizontally towards east.
	The direction of the magnetic field at a point above	A magnetic field in vertically downward direction
	the conductor is	exerts a force on the electron along
	a. towards north b. towards south	a. east b. west
	c. towards east d. towards west	c. north a. south
	CHEMICTOV (1	
		ODIC CLASSIFICATION OF FLEMENTS)
	(CARDON AND ITS COMPOUND PERI	Concernstruction of Elements
21.	Graphite is used as a lubricant in machines	c. They have the same electrical conductivity
	because	d. They can undergo the same chemical reactions
	a. It is a good conductor of electricity.	
	b. It has a high melting point and slippery layers	26. The property of self-linkage among identical atoms
	c. Its density ranges from 1.9 to 2.3 g/cm <sup>3</sup>	to form long chain compounds is known as:
	d. It is strong and soft	a. Catenation b. Isomerisation
~~	Million of the following and store and device height	c. Superposition d. Halogenation
ZZ.	offervescopes with baking soda solution?	27 Which of the following compounds of carbon does
	a Ethanoic acid b Table salt	27. Which of the following compounds of carbon does
	c Vinegar d Sunflower oil	a CHClo b CaCOo
23.	What is denatured alcohol?	c. NaHCO <sub>3</sub> d. Ca <sub>2</sub> C
-	a. Ethyl alcohol which has been made unfit for	
	drinking purpose by adding small amount of	28. Which of the following belongs to homologous
	poisonous substance.	series of alkynes?
	b. Methyl alcohol which has been made unfit for	$C_6H_6$ , $C_2H_6$ , $C_2H_4$ , $C_3H_4$
	drinking purpose by adding small amount of	a. $C_6H_6$ b. $C_2H_4$
	poisonous substance	$C. \ C_2H_6 \qquad \qquad d. \ C_3H_4$
	d Ethyl alcohol containing 60% of water by weight	20 A metal 'M' is in the first group of the Periodic
	d. Early aconor containing of 70 or water by weight	Table. What will be the formula of its oxide?
24.	Which of the following is the major constituent of	a. MO b. M <sub>2</sub> O
	the liquefied petroleum gas?	c. $M2O_3$ d. $MO_2$
	a. Methane b. Ethane	
	c. Propane d. Butane	30. The atom of an element has electronic
~ ~		configuration 2, 8, 7. To which of the following
25.	Which of the following statements about graphite	elements would it be chemically similar?
	and diamond is true?	P(15)
	<ul> <li>They have the same degree of hardness</li> </ul>	C. Na(11) U. F(9)
	BIOLOGY (10	OUESTIONS)
	(HOW DO ORGANISMS R	REPRODUCE & HEREDITY)
31.	The unicellular organism which reproduces by	33. A multicellular organism reproducing asexually by
	budding is	regeneration is
	a. Spirogyra b. Planaria	a. Planaria b. Cockroach
	c. Yeast d. Hydra	c. Taenia d. Sugarcane
32.	I his is concerned with asexual reproduction.	34. Attainment of sexual maturity is called
	a. ∠ygote D. Spore	a. Puperty D. Adolescence
	u. Gonau	

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4



5

35.	In the human female, fertilisation of the ovum takes place in	<ul><li>38. The genetic constitution of an organism is called</li><li>a. Genotype</li><li>b. Phenotype</li></ul>
	a. Uterus b. Ovary	c. Variation d. Chromosomes
	c. Fallopian tube d. Vagina	20. The ellele which is unable to overses its effect in
36.	The process of release of the egg from the ovary is called	<ul> <li>a. Co – dominant</li> <li>b. Dominant</li> </ul>
	a. Menstruation b. Ovulation	c. Recessive d. Complementary
	c. Oogenesis d. None of these	40 In human beings sex of baby is determined at the
37.	Vegetative reproduction is a form of	time of
	a. Sexual reproduction b. Asexual	a. intercourse b. Gamete formation
	reproduction	c. Parturition d. Fertilisation
	c. Both of them d. None of these	

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