PCMB EduShala
IIT-JEE | NEET | MHT-CET

PRAGAT - SAMPLE - 01

PRAGAT ENTRANCE & SCHOLARSHIP TEST

STANDARD - X

Time : 90 min   **Max Marks : 200**

INSTRUCTIONS

A. General Instructions

1. This questions paper contains **Five Parts.**

2. **Part - I** is Physics, **Part - II** is Chemistry, **Part - III** is Mathematics, **Part IV** is Biology **and Part – V** is Mental Aptitude Test.

3. Clip Boards, Log Tables, Calculator, Cellular Phones and Electronic Devices in any form, are not allowed.

B. Marking Scheme for All Parts

- **Physics**, **Chemistry**, **Mathematics, Biology** and **MAT** 10 multiple choice questions which have Only One Correct Answer. Each question has Four choices **(A), (B), (C) and (D)** out of which ONLY ONE is correct. **[+4, 0]**

- **No Negative Marking**

Name of the candidate -_____

School Name -_____   Board - _____

Centre - _____

My Goal -   Science ☐   Commerce ☐   Arts ☐   Not decided ☐

SUBJECT	PHYSICS	CHEMISTRY	MATHS	BIOLOGY	MAT	TOTAL CORRECT ANSWERS	TOTAL SCORE
CORRECT ANSWERS							
TOTAL QUESTIONS	10	10	10	10	10	50	200

PHYSICS

1) Which of the following can produce virtual images for real objects.
   - (a) Convex mirror
   - (b) Concave mirror
   - (c) Plane mirror
   - (d) All of the above

   Response : A ◯   B ◯   C ◯   D ◯

2) A point object is placed infront of convex lens of focal length 20 cm, at a distance of 60 cm from lens. Findout image distance from lens ?
   - (a) 40 cm
   - (b) 40 cm
   - (c) 30 cm
   - (d) 35 cm

   Response : A ◯   B ◯   C ◯   D ◯

3) A convex lens is made up of three different materials as shown in the figure. For a point object placed on its axis, the number of image formed are
   - (a) 1
   - (b) 3
   - (c) 4
   - (d) 5

   Response : A ◯   B ◯   C ◯   D ◯

4) Myopia can be removed by using a lenses of
   - (a) Concave lens
   - (b) Convex lens
   - (c) Cylindrical lens
   - (d) None of the above

   Response : A ◯   B ◯   C ◯   D ◯

5) The focal length of the eye lens increases when eye muscles
   - (a) Are relaxed and lens becomes thinner
   - (b) contract and lens becomes thicker
   - (c) Are relaxed and lens becomes thicker
   - (d) Contract and lens becomes thinner

   Response : A ◯   B ◯   C ◯   D ◯

6) At noon the sun appears white as
   - (a) Light is least scattered
   - (b) All the colours of the white light are scattered away
   - (c) Blue colour is scattered the most.
   - (d) Red colour is scattered the most.

   Response : A ◯   B ◯   C ◯   D ◯

7) In a metal,
   - (a) All the electrons are free
   - (b) All the electros are bound to their parent atoms
   - (c) There are no free electrons
   - (d) Some electrons are free

   Response : A ◯   B ◯   C ◯   D ◯

8) Resistivity of a conductor depends upon
   (a) Area of cross - section   (b) Material and temperature
   (c) Length   (d) All

Response : A ◯   B ◯   C ◯   D ◯

9) When a bar magnet is broken into two pieces :
   (a) We will have a single pole on each piece
   (b) Each piece will have two unlike poles
   (c) Each piece will have two like poles
   (d) None of these

Response : A ◯   B ◯   C ◯   D ◯

10) An electric current passes through a strainght wire. Magnetic compasses are placed at
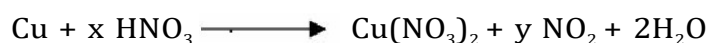   the points A and B.
    (a) Their needles will not deflect.
    (b) Only one of the needles will deflect.
    (c) Both the needles will deflect in the same direction.
    (d) The needles will deflect in the opposite directions.

Response : A ◯   B ◯   C ◯   D ◯

CHEMISTRY

11) The equation -
    $Cu + x\ HNO_3 \longrightarrow Cu(NO_3)_2 + y\ NO_2 + 2H_2O$
    The values of x and y are -
    (a) 3 and 5   (b) 8 and 6   (c) 4 and 2   (d) 7 and 1

Response : A ◯   B ◯   C ◯   D ◯

12) $AgNO3(aq) + Nacl(aq) \longrightarrow AgCl(s) + NaNO_3(aq)$ above reaction is a -
    (a) Precipitaiton reaction   (b) Double displacement reaction
    (c) Combination reaction   (d) (a) and (b) both

Response : A ◯   B ◯   C ◯   D ◯

13) $CuO + (x) \longrightarrow CuSO_4 + H_2O$. Here (X) is -
    (a) $CuSO_4$ (b) HCl   (c) H_2SO_4 (d) HNO_3

Response : A ◯   B ◯   C ◯   D ◯

14) Ionic compound have -
    (a) Low melting and high boiling points   (b) High melting and Low boiling points
    (c) Low melting and low boiling points   (d) High melting and high boiling points

Response : A ◯   B ◯   C ◯   D ◯

15) Select the alkyne form the following
    (a) C_4H_8 (b) C_5H_8 (c) C_7H_{19} (d) None of these

Response : A ◯   B ◯   C ◯   D ◯

16) What is the total number of H - atom in following bond line notation
    (a) 43.75%   (b) 50%   (c) 37%   (d) none of these

Response : A ◯   B ◯   C ◯   D ◯

17) The functional group, present in $CH_3COOC_2H_5$ is -
    (a)   Ketone   (b) Aldehyde   (c)   Ester   (d) Carboxylic

Response : A   B   C ◯   D ◯

18) In the third period of the periodic table, the element having smallest size is -
    (a)   Na   (b) Ar   (c)   Cl   (d) Si

Response : A   B ◯   C ◯   D ◯

19) Atomic number of Ag is 47. In the same group, the atomic numbers of elements placed above and below Ag in long form of periodic table will be :
    (a) 29, 65   (b) 39, 79   (c) 29, 79   (d) 39, 65

Response : A   B ◯   C ◯   D ◯

20) Metallic radius of Ca is 200pm. Covalent radius of Ca should be
    (a) 200 pm   (b) 230 pm   (c) 280 pm   (d) 174 pm

Response : A ◯   B ◯   C ◯   D ◯

MATHEMATICS

21) The HCF of two numbers, obtained in three steps of division, is 7 and the first 3 quotients are 2,4 and 6 respectively, Find the numbers
    (a) 175, 392   (b) 189,392   (c) 168, 385   (d) none of these

Response : A ◯   B ◯   C ◯   D ◯

22) If sum of zeros = $\sqrt{2}$, product of its zeros = $\dfrac{1}{3}$. The quadratic polynomial is

    (a) $3x^2 - 3\ 2x + 1$ (b) $\sqrt{2}\,x^2 + 3x + 1$

    (c) $3x^2 + 2\sqrt{3}\,x + 1$ (d) $\sqrt{2}\,x^2 + x + 3$

Response : A ◯   B ◯   C ◯   D ◯

23) Solve : x + y = 3, 2x + 3y = 7
    (a)   x = 2, y = 1   (b) x = 1, y = 2   (c) x = 3, y = 2   (d) None of these

Response : A ◯   B ◯   C ◯   D ◯

24) If (x = 1) is a factor of $3x^2 + kx + 4$, then $k = $ ....
    (a)   3   (b) 6   (c) -7   (d) 7

Response : A ◯   B ◯   C ◯   D ◯

25) For what value of n, are the nth terms of two APs :
    63, 65, 67, ... and 3, 10, 17,....................equal
    (a)   15   (b) 14   (c)   13   (d) 12

Response : A ◯   B ◯   C ◯   D ◯

26) ABC is a triangle and DE is drawn parallel to BC cutting the other sides at D and E. If AB = 3.6 cm, AC = 2.4 cm and AD = 2.1 cm then AE is equal to :
   (a)   1.4 cm   (b) 1.8 cm   (c)   1.2 cm   (d)   1.05 cm

Response : A ◯   B ◯   C ◯   D ◯

27) The mid - points of the line segment joining the points (-2, 4) and (6, 10) is :
   (a)   (2, 5)   (b) (2, 7)   (c)   (3, 7)   (d)   (3, 8)

Response : A ◯   B ◯   C ◯   D ◯

28) If cosec A = $\dfrac{2}{\sqrt{3}}$ and A is acute, then tan A = ?
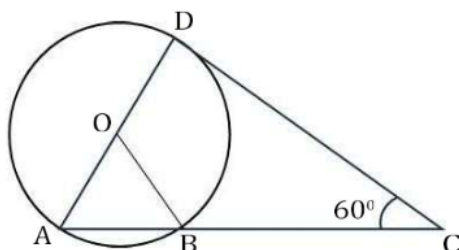
   (a) $\dfrac{1}{\sqrt{3}}$ (b) $\dfrac{\sqrt{3}}{2}$ (c) $\sqrt{3}$ (d)   2

29) If the elevation of the sun changed from 30° to 60°, then the difference between the length of shadows of a pole 15m high, made at these two positions, is ?

   (a)   7.5m (b) 15 m (c) $10\sqrt{3}\,m$ (d) $\dfrac{15}{\sqrt{3}}\,m$

Response : A ◯   B ◯   C ◯   D ◯

30) In the figure, if O is the centre of the circle, then ∠DOB equals :

   (a)   120⁰   (b) 30⁰   (c)   90⁰   (d)   60⁰

Response : A ◯   B ◯   C ◯   D ◯

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BIOLOGY

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31) Chlorophyll pigment are present in -
   (a)   Chloroplasts   (b) Root hairs   (c) Stomata   (d) Lenticels

Response : A ◯   B ◯   C ◯   D ◯

32) Urea is formed in :
   (a)   Liver   (b) Spleen   (c) Kidney   (d) None of these

Response : A ◯   B ◯   C ◯   D ◯

33) Control and co-ordination of different responses in plants to environment are made by :
   (a)   Enzymes   (b) Hormones   (c) Vitamins   (d) Metals

Response : A ◯   B ◯   C ◯   D ◯

34) The growth regulator that causes abscission of plant organ is -
   (a) Abscisic acid   (b) Auxin   (c) Cytokinin   (d) Gibberellin
   Response : A ○   B ○   C ○   D ○

35) The cerebellum is concerned with :
   (a) Preception
   (c) Coordination and movement
   (b) Vision
   (d) Memory
   Response : A ○   B ○   C ○   D ○

36) Primary sex organs in males are :
   (a) Urethra   (b) Testes   (c) Epididymis   (d) Seminal vesicle
   Response : A ○   B ○   C ○   D ○

37) Female sex hormones are
   (a) Progesterone   (b) Estrogen   (c) Both (a) and (b)   (d) None of the above
   Response : A ○   B ○   C ○   D ○

38) From the list given below, select the character which can be acquired but not inherited
   (a) Colour of eye   (b) Colour of skin (c) Size of body   (d) Nature of hair
   Response : A ○   B ○   C ○   D ○

39) In peas, a pure tall plant (TT) is crossed with a short plant (tt). The ratio of pure tall plants to short plants in F2 is
   (a) 1 : 3   (b) 3 : 1   (c) 1 : 1   (d) 2 : 1
   Response : A ○   B ○   C ○   D ○

40) Genetics is the branch of science which deals with the study of :
   (a) Cell function
   (c) Heredity and variation
   (b) Cell structure
   (d) Relation between plant and environment
   Response : A ○   B ○   C ○   D ○

MAT

Directions (1 to 3): In each of the following questions, a group of letters is given which are i numbered 1, 2, 3, 4, 5 and 6. Below are given f four alternatives containing combinations of these numbers. Select that combination of numbers so that letters aranged accordingly, form a meaningful word.

41) G   A   N   I   M   E
   1   2   3   4   5   6
   (a) 1, 2, 3, 4, 3, 6, 5   (b) 6, 3, 4, 1, 5, 2
   (c) 5, 2, 1, 4, 3, 6   (d) 2, 5, 1, 4, 3, 6
   Response : A ○   B ○   C ○   D ○

42) C   E   L   S   M   U
   1   2   3   4   5   6
   (a) 4, 6, 3, 5, 2, 1   (b) 5, 6, 4, 1, 3, 2
   (c) 4, 6, 5, 2, 3, 1,   (d) 5, 2, 3, 1, 6, 4
   Response : A ○   B ○   C ○   D ○

43) How many pair of letter are there in the word, `EXPERIENCED' which have as many letters between them in the word as in alphabet ?
(a) One   (b) There   (c) Four   (d) More than four

Response : A ◯   B ◯   C ◯   D ◯

44) Average marks obtained by 9 students in one row of a class is 45. One student with 35 marks exchanges his seat with a student securing 48 marks. What is the average marks of these 9 students of this row?
(a) 56.4   (b) 46.4   (c) 47.6   (d) 45.6

Response : A ◯   B ◯   C ◯   D ◯

45) What is my relation with the daughter of the son of my father's sister ?
(a) Cousin   (b) Niece   (c) Sister   (d) Maternal aunt

Response : A ◯   B ◯   C ◯   D ◯

46) Pointing at a man, a woman said, "He is the only son of my mother's mother." How is the woman related to the man?
(a) Daughter   (b) Sister   (c) Niece   (d) Mother

Response : A ◯   B ◯   C ◯   D ◯

47) If 5 January 2001 was Friday, then which was the day on 25 December 2001?
(a) Monday   (b) Tuesday   (c) Wednesday   (d) Thursday

Response : A ◯   B ◯   C ◯   D ◯

48) If a clock shows 11 : 32, then it's mirror image will be ?
(a) 12 : 28   (b) 1 : 28   (c) 6 : 28   (d) 5 : 28

Response : A ◯   B ◯   C ◯   D ◯

49) If MENTAL is written LNDFMOSUZBKM, then how would TEST be written in that code ?
(a) UVFGTIIV   (b) RSCDQRRS
(c) SUDFRQRSM   (d) SUDFRTSU

Response : A ◯   B ◯   C ◯   D ◯

50) If in any code language TARGET is coded as UYUCNJ then which word is coded as VICTORY in that language ?
(a) UKZXJXR   (b) UKYXJDR   (c) UKYXJWD   (d) None

Response : A ◯   B ◯   C ◯   D ◯

Best of Luck 👍