

IIT ASHRAM BRINGS...

CLASS

7

PHASE-II

KH  J

(2021)

A Hunt for
young Scientists..!

SAMPLE PAPER

Time : 1 Hours

Maximum Marks : 160

IMPORTANT INSTRUCTIONS

Please read the instructions carefully. You are allotted 5 minutes specifically for this purpose.

A. GENERAL :

1. This booklet consists of 40 questions.
2. Blank papers, clipboards, log tables, slide rules, calculators, cellular phones, and electronic gadgets in any form are not allowed to be carried inside the examination hall.
3. The answer sheet, a machine-readable Optical Mark Recognition (OMR), is provided separately.
4. Do not tamper with / mutilate the OMR or the Booklet.
5. Write Name and Address in capital letters on OMR sheet.
6. Submit the OMR Sheet back to Invigilator after examination before leaving the examination hall.
7. Previous year or Term exam's percentage | grade | Marks scored in Maths and Science must be written at the back of OMR Sheet

B. QUESTION PAPER FORMAT:

7. The question paper consists of **4 Parts**.
Part-I :- Mental Ability (8 Questions) **Part-II :- Mathematics (8 Questions)**
Part-III :- Physics/ Chemistry (16 Questions) **Part-IV:- Biology (8 Questions)**

C. Marking Scheme :

8. For each question in **Part-I , II, III & IV** you will be **awarded 4 marks** if you have darkened only the bubble corresponding to the correct answer and zero mark if no bubble is darkened. In all other cases where the answer marked is not correct, **minus one (-1) mark** will be awarded.



IIT ASHRAM

JEE MAIN & ADVANCED | NEET & AIIMS | PRE-FOUNDATION | FOUNDATION

ALKAPURI (H.O.): UG-1 to 4, Concorde Complex, Above PNB, R.C. Dutt Rd, Alkapuri, Vadodara. Mob.: 9033034152, 9033063022

MAKARPURA : SF-1 to 12, Kabir Plaza, Above IDBI Bank, Bhavan's Makarpura Road, Mob.: 9227666620, 9033063028.

ANAND : 2nd Floor, HR Building, Beside Croma Showroom, A.V. Road, Nr. Town Hall, Anand. Mob.: 9227777098, 8460009041.

DAHOD : St. Mary's School, Godi Road, Dahod-389151. Mob.: 8160277559.

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PART - I : MENTAL ABILITY

1. Find the wrong term (s) :

13, 22, 31, 41, 49

- (a) 13 (b) 22 (c) 31 (d) 41

2. Find the wrong term (s) :

A, C, E, F, I, K

- (a) C (b) E (c) F (d) I

3. Find the missing number(s) :

7	9	11
2	3	2
53	90	?

- (a) 120 (b) 100 (c) 125 (d) 64

4. How many L's are there which do not have R preceding them and also do not have T following them ?

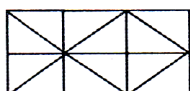
Z Q S T L R M N Q N R T U V X R L T A S L T Q R S L T

- (a) 1 (b) 2 (c) 3 (d) 5

5. In the given question, four words are given, out of which three are same in one way and the fourth one is different from others. Select the odd one.

- (a) Silk (b) Fur (c) Milk (d) Rubber

6. How many squares does the figure have ?



- (a) 6 (b) 7 (c) 9 (d) 10

7. I am facing South. I turn right and walk 20 m. Then I turn right again and walk 10 m. Then I turn left and walk 10 m and then turning right walk 20 m. Then I turn right again and walk 60 m. In which direction am I from the starting point ?

- (a) North (b) North-west (c) East (d) North-East

8. 'Page' is related to 'Book' as 'Leaf' is related to

- (a) Root (b) Green (c) Tree (d) Forest

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PART – II : MATHEMATICS

1. Two chimneys 18 m and 13 m high stand upright on a ground. If their feet are 12 m apart, then the distance between their tops is
(a) 5 m (b) 31 m (c) 13 m (d) 18 m
2. If $(x - 4) \times (x + 4) = (x + 4)(x - 7) + 33$, then the value of x is
(a) 7 (b) 6 (c) 5 (d) 8
3. If 15, 30, y are in proportion, then the third proportional is
(a) 80 (b) 70 (c) 50 (d) 60
4. If $AB = (2x + 20)$ cm, $BC = y$ and $AC = (3z - 20)$ cm, where $x = 20$ cm, $y = 100$ cm, $z = 40$ cm, then $\triangle ABC$ is _____ triangle.
(a) an isosceles (b) an equilateral (c) a scalene (d) none
5. If Ramesh earns Rs.1,26,000 and pays an income tax of Rs.18,000, then the ratio of income to tax paid is
(a) 7 : 1 (b) 8 : 1 (c) 9 : 1 (d) 1 : 8
6. There are 40 match sticks in a matchbox. Sania uses 3 match sticks everyday. The fraction of match sticks which are unused in a week is _____
(a) $\frac{21}{40}$ (b) $\frac{3}{40}$ (c) $\frac{19}{40}$ (d) $\frac{7}{40}$
7. $40 + 3 + \frac{7}{100} + \frac{6}{1000}$ is equal to
(a) 43.706 (b) 43.760 (c) 43.076 (d) 43.670
8. If a and b are factors of 17 ; p, q, r are first three multiples of 2, then $\frac{p+q+r}{a+b} + \frac{pqr}{a+b}$ is
(a) $\frac{40}{3}$ (b) $\frac{10}{3}$ (c) $\frac{20}{3}$ (d) $\frac{50}{3}$

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PART – III : PHYSICS/ CHEMISTRY

- Conduction of heat does not take place in:
(a) copper (b) iron (c) silver (d) wood
- One litre of water at 30°C is mixed with one litre of water at 50°C. The temperature of the mixture will be
(a) 80°C
(b) more than 50°C but less than 80°C
(c) 20°C
(d) between 30°C and 50°C
- Device used for measuring temperatures is called a
(a) Barometer (b) Odometer
(c) Thermometer (d) Speedometer
- The motion that repeats itself after regular intervals of time can be ____ (Find the incorrect option).
(a) To and Fro Motion (b) Circular Motion
(c) Rectilinear Motion (d) Periodic Motion
- The unit to measure electric resistance is:
(a) Joule (b) Ohm (c) Ampere (d) Volt
- When a Newton disc is rotated at good speed, the colours of the disc would blend and gives
(a) Blackcolor (b) white color
(c) Bluecolor (d) yellow color
- The shortest distance between the initial position and the final position of a body is called
(a) path length (b) distance (c) Area (d) None of these
- The S.I. unit of acceleration is
(a) m/s² (b) cm/s² (c) km/s² (d) mm/s²
- Kings of chemical is known as
(a) Sulphuric acid (b) Ethanoic acid (c) Nitric acid (d) Hydrochloric acid
- Which of the following are not the liquid forms of water?
(i) Snow (ii) Lake water
(iii) River water (iv) Water vapor (v) Ice

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Choose the correct combination from the options below.

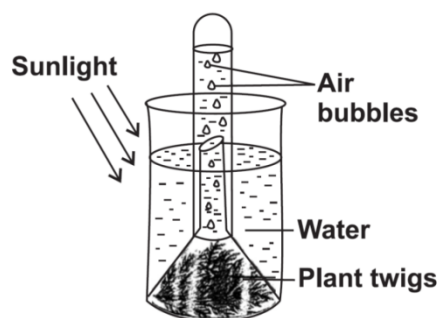
- (a) (i), (iv) and (v) (b) (i) and (ii) (c) (ii) and (iii) (d) (iv) only

11. Making sugar solution is a _____ change.
- (a) Physical and irreversible (b) Chemical and reversible
(c) Physical and reversible (d) Chemical and irreversible
12. Bubbles of which gas are produced when acetic acid is added to a solution of sodium carbonate.
- (a) Carbon dioxide (b) Carbon monoxide
(c) Oxygen (d) Nitrogen
13. In a filtration plant water is filtered using layers of
- (a) Sand and clay. (b) Clay and fine gravel.
(c) Sand and fine gravel. (d) Sand, fine gravel and medium
14. An indicator which is obtained from the association of fungus and algae:
- (a) China rose (b) Turmeric (c) Phenolphthalein (d) Litmus
15. Which salt is produced when caustic soda is reacted with nitric acid?
- (a) Potassiumsulphate (b) Sodium chloride
(c) Sodium nitrate (d) Potassium chloride
- 16.. Kunal took few iron turnings and mixed them well with sulphur powder. He could separate the iron turnings with the help of a magnet. He heated the mixture for some time and tried to separate the iron turnings with the magnet but he could not. Why?
- (a) On heating, a chemical change takes place and a new compound is formed.
(b) On heating, iron becomes non-magnetic hence, it is not attracted by magnet.
(c) On heating, a physical change takes place hence iron and sulphur gets mixed up.
(d) On heating, iron evaporates and only sulphur is left behind.

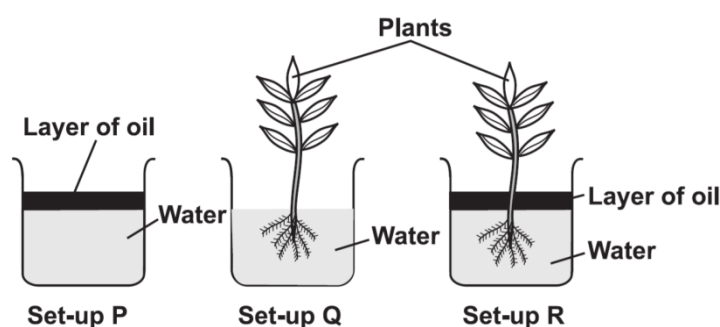
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PART - IV : BIOLOGY

- Tomato plant is a _____
(a) Herb (b) Shrub (c) Tree (d) none of these
- The joint which helps in rotating a body in all directions is called _____
(a) Fixed Joint (b) Hinge Joint
(c) Pivot Joint (d) Ball and Socket Joint
- Our body prepares which type of Vitamin in the presence of sunlight?
(a) Vitamin A (b) Vitamin B (c) Vitamin D (d) Vitamin K
- Reeva puts some freshly cut plant twigs in a beaker filled with water. She covered the plant with a funnel and test tube as shown in the given figure and then put the setup in sunlight. After few hours, she observes that bubbles are evolving in the setup. Which of the following is correct regarding the air bubbles?



- (A) Bubbles evolve as carbon dioxide is released in plant respiration.
(B) Bubbles evolve because water gets heated under sunlight.
(C) Bubbles evolve as oxygen is released in photosynthesis.
(D) Both (A) & (B)
- Megha conducted an experiment with plants and prepared three set-ups as shown in the figure.



Which of the three beakers will show the maximum decrease in water level?

- (A) Set-up P, because layer of oil increases evaporation.
(B) Set-up R, because it will lose water by both transpiration and evaporation.

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(C) Set-up Q, because it will lose water by both transpiration and evaporation.

(D) Set-ups R and Q will show same level of decrease because both of them lose water by transpiration.

6. The acid present in the stomach
- (a) kills the harmful bacteria that may enter along with the food.
 - (b) protects the stomach lining from harmful substances.
 - (c) digests starch into simpler sugars.
 - (d) makes the medium alkaline.
7. Breathing is a process that
- (i) provides O_2 to the body.
 - (ii) breaks down food to release energy.
 - (iii) helps the body to get rid of CO_2 .
 - (iv) produces water in the cells.

Which of the following gives the correct combination of functions of breathing?

- (a) (i) and (ii) (b) (ii) and (iii) (c) (i) and (iii) (d) (ii) and (iv)

8. Which of the following statements is/are correct?
- (i) All green plants can prepare their own food.
 - (ii) Most animals are autotrophs.
 - (iii) Carbon dioxide is not required for photosynthesis.
 - (iv) Oxygen is liberated during photosynthesis.

Choose the correct answer from the options below:

- (a) (i) and (iv) (b) (ii) only (c) (ii) and (iii) (d) (i) and (ii)