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SAMPLE PAPER

ANSWER KEY WITH SOLUTION

Class 7

PART – I : MENTAL ABILITY

1. Find the wrong term (s) :

13, 22, 31, 41, 49

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

Sol. (d) Common difference between the consecutive terms is + 9

The fourth term is not following the same rule. Hence, 41 is the wrong term and should be replaced by 40.

2. Find the wrong term (s) :

A, C, E, F, I, K

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

Sol. (c) Each letter of the series differs by one letter. Hence, F is the wrong term and should be replaced by G.

3. Find the missing number(s) :

7	9	11
2	3	2
53	90	?

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

Sol. (c) In the first column, $7^2 + 2^2 = 53$

In the second column, $9^2 + 3^2 = 90$

So, missing number, $11^2 + 2^2 = 125$

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

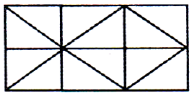
Sol. (c) Z Q S T L R M N Q N R T U V X R L T A S L T Q R S L T

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

Sol. (d) Only 'Rubber' is the tree product.

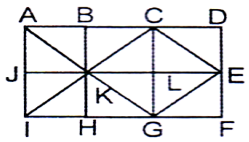
6. How many squares does the figure have ?



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

Sol. (c) The figure may be labelled as shown :

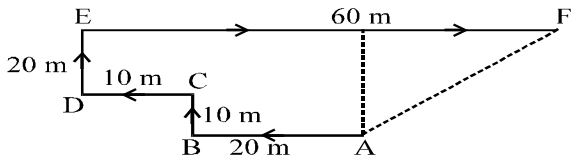
The squares composed to two components each, are ABKJ, BCLK, CDEL, LEFG, KLGH and JKHI. Thus, there are 6 + 1 + 2 = 9 squares in the given figure.



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

Sol. (d) The movement of the person are from A to F, as shown in figure. Clearly, the final position is F which is to the Noth-East of the starting point A.



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

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

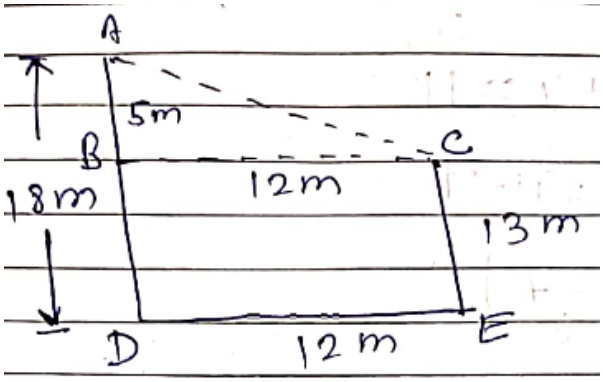
Sol. (c) 'Page' is a part of 'Book' and in the same way we see that 'Leaf ' is a part of 'Tree'. Hence, our answer is (C).

PART – II : MATHEMATICS

1. Two chimneys 18 m and 13 m high stand upright on a ground. if their feet is 12 m apart, then the distance between their tops is .....

(a) 5 m (b) 31 m (c) 13 m (d) 18 m

Sol. (c)



$AC = \sqrt{AB^2 + BC^2} = \sqrt{5^2 + 12^2}$

$AC = \sqrt{169} = 13m$

2. If (x – 4) × (x + 4) = (x + 4) (x – 7) + 33, then the value of x is

(a) 7 (b) 6 (c) 5 (d) 8

Sol. (a)

$\because (X-4)\times(X+4) = (X+4)(X-7) + 33$

$(X-4)\ (X+4) - (X+4)(X-7) = 33$

Taking x + 4 or common

$(X+4)\ \{(X+4)-(X+7)\} = 33$

$(X-4)\ \{x-4-x+7\} = 33$

$(X-4)\times 3 = 33$

$x+4 = \frac{33}{3}$

x + 4 = 11

x = 11 – 4

x = 7

3. If 15, 30, y are in proportion, then the third proportional is

(a) 80 (b) 70 (c) 50 (d) 60

Sol. (d)

$\because 15 : 30 :: 30 : y$

$15 \times y = 30 \times 30$

$y = \frac{30 \times 30}{15}$

$y = 2 \times 30 = 60$

4. If AB = (2x + 20) cm, BC = y and AC = (3z – 20) cm, where x = 20 cm, y = 100 cm, z = 40 cm, then ABC is _____ triangle.

(a) an isosceles (b) an equilateral (c) a scalene (d) none

Sol. (a)

$\because$ x = 20cm, y = 100cm, z = 40cm

AB = 2x + 20 = 2 $\times$ 20 + 20 = 60cm

BC = y = 100cm

AC = 3z – 20 = 3 $\times$ 40 – 20 = 100cm

$\because$ BC = AC

$\therefore \Delta$ ABC is an isosceles

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

Sol. (a)

Earning	:	tax
1,26,000	:	18,000
126	:	18
7	:	1

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) $\frac{7}{40}$

Sol. (c)

Match sticks used in a week = 3 $\times$ 7 = 21

Unused = total $-$ used

= 40 $-$ 21 = 19

Required fraction = $\frac{19}{40}$

7. $40 + 3 + \frac{7}{100} + \frac{6}{1000}$ is equal to

(a) 43.706 (b) 43.760 (c) 43.076 (d) 43.670

Sol. (c)

$40 + 3\frac{7}{100} + \frac{6}{1000}$

$40 + 3 + 0.07 + 0.006$

= 43.076

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) $\frac{50}{3}$

Sol. (b)

Let a = 1 $[\because 17 = 1 \times 17]$

b = 17

and

p = 2

q = 4

r = 6

Now

$\frac{p+q+r}{a+b} + \frac{pqr}{a+b}$

= $\frac{2+4+6}{1+17} + \frac{2\times4\times6}{1+17}$

= $\frac{12}{18} + \frac{48}{18} = \frac{12+48}{18} = \frac{60}{18} = \frac{30}{9}$

= $\frac{30}{9} = \frac{10}{3}$

PART – III : PHYSICS/ CHEMISTRY

1. Conduction of heat does not take place in:

(a) copper (b) iron (c) silver (d) wood

Sol. (d)
Conduction of heat does not takes place in wood it is bad conductor of heat.

2. 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

Sol. (d)
Heat always flows from high temperature to low temperature . That's why the temp of higher body will reduce and temperature of lower body will increase. So it means that the equilibrium temp will between both the temperatures.

3. Device used for measuring temperatures is called a

(a) Barometer (b) Odometer
(c) Thermometer (d) Speedometer

Sol. (c)
Thermometer is a device used for measuring temperature

4. 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

Sol. (d)
Periodic motion is a motion in which repeats its in equal interval of time .

5. The unit to measure electric resistance is:

(a) Joule (b) Ohm (c) Ampere (d) Volt

Sol. (b) The SI unit of resistance is Ohm

6. 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

Sol. (b) When you rotate the newton's disc all the color combines and give you white color.

7. 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

Sol. (d) Shortest distance between initial and final position is called Displacement

8. The S.I. unit of acceleration is

(a) m/s^2 (b) cm/s^2 (c) km/s^2 (d) mm/s^2

Sol. (a) SI unit of acceleration is m/s^2

9. Kings of chemical is known as

(a) Sulphuric acid (b) Ethanoic acid (c) Nitric acid (d) Hydrochloric acid

Sol. (a) Sulphuric acid (H_2SO_4) is known as king of chemicals.

10. Which of the following are not the liquid forms of water?

(i) Snow (ii) Lake water

(iii) River water (iv) Water vapor (v) Ice

Choose the correct combination from the options below.

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

Sol. (b) Snow and ice are the solid forms of water.

11. Making sugar solution is a _____ change.

(a) Physical and irreversible (b) Chemical and reversible

(c) Physical and reversible (d) Chemical and irreversible

Sol. (c) Making sugar solution is a physical and reversiblechange.

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

Sol. (a) Bubbles of carbon dioxide are produced when acetic acid is added to a solution of sodium carbonate.

$2CH_3COOH + Na_2CO_3 \rightarrow 2CH_3COONa + H_2O + CO_2$

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

Sol. In a filtration plant water is filtered using layers ofSand, 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

Sol. (d) Litmus is obtained by lichens.

15. Which salt is produced when caustic soda is reacted with nitric acid?

(a) Potassiumsulphate (b) Sodium chloride

(c) Sodium nitrate (d) Potassium chloride

Sol. (c) When caustic soda (NaOH) is reacted with nitric acid (HNO_3), it produces sodium nitrate ($NaNO_3$) and water.

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.

Sol. (a) On heating iron and sulphur, a new substance, iron sulphide (FeS) is formed, so it is a chemical change.

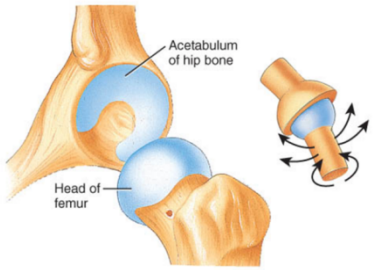
PART – IV : BIOLOGY

1. Tomato plant is a _____
   (a) Herb (b) Shrub (c) Tree (d) none of these

Ans: -(a) Herb

2. 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

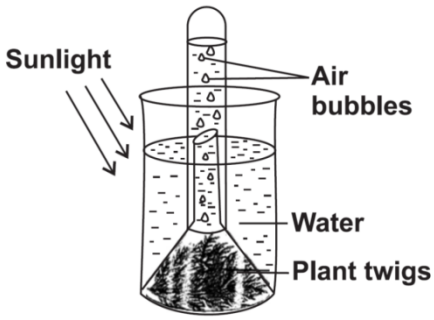
Ans: (d) Ball and Socket Joint



3. Our body prepares which type of Vitamin in the presence of sunlight?
   (a) Vitamin A (b) Vitamin B (c) Vitamin D (d) Vitamin K

Ans- (c) Vitamin D

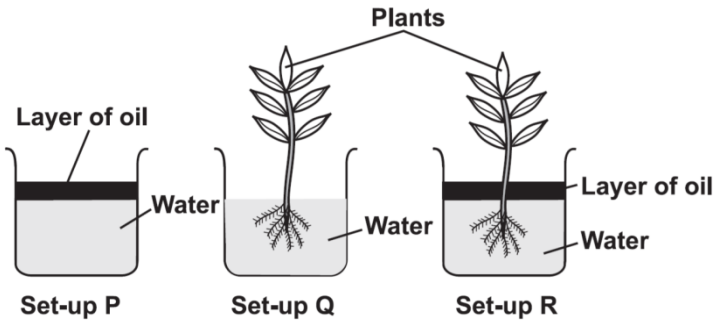
4. Reeva puts some freshly cut plant twigs in a beaker filled with water. She covered the plant with a funnel and test tube as shown in the given figure and then put the setup in sunlight. After few hours, she observes that bubbles are evolving in the setup. Which of the following is correct regarding 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)

Ans: (C) Bubbles evolve as oxygen is released in photosynthesis.

5. 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.

(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.

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

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.

Ans-(a) kills the harmful bacteria that may enter along with the food.

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)

Ans-(c) (i) and (iii)

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)

Ans-(a) (i) and (iv)