



# **IIT ASHRAM**

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## **KHOJ 2021**

### **SAMPLE PAPER**

### **ANSWER KEY WITH SOLUTION**

### **Class 8**

# KHOJ SAMPLE PAPER

## PART - I : MENTAL ABILITY

1. If it is possible to make a meaningful word from the third, the fourth and the eleventh letters of the word CONTROVERSIAL, write the first letter for that word, if more than one word can be found write S, otherwise write X.

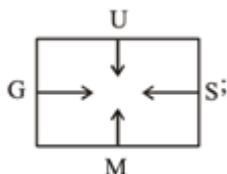
- (a) N (b) S (c) T (d) I

Sol. (b) TIN and NIT can be made

2. Four friends were playing a game of cards, See the was to the right of Maithili and Uma to the left of Gouri. Which of the following a pair of partners?

- (a) Maithili and Gouri (b) Uma and Seethe  
(c) Maithili and Seethe (d) Uma and Maithili

Sol. (d)



3. Three of the following four are alike in a certain way. Which one is not like the other four?

- (a) Mica (b) Bird (c) Pair (d) News

Sol. (c) Rest are singular. Pair is plural.

4. In a certain code CAT is written as SATC and DEAR as SEARD. How is SING written in that code?

- (a) SSING (b) INGS (c) SINGE (d) SINGS

Sol. (d) 'S' is prefixed, whereas first letters goes at the end.

5. a a b \_ a a a \_ b b a \_

- (a) b a a (b) a b b (c) b a b (d) a a b

Sol. (a) a a b b a a / a a b b a a. Therefore **baa** is answer.

6. Two clocks were set right at noon on Sunday. One gains 2 min and the others loses 3 min in 24 hours. What will be the true time when the first clock indicates 3 pm on Wednesday?

- (a) 2.38 pm (b) 2.54 pm (c) 2.23 pm (d) 2.48 pm

Sol. (b) Time from noon on Sunday to 3 pm on Wednesday = 75 hours.

⇒ 24 hours 2 minutes of the first clock = 24 hours of the correct one.

1 hour of the first clock =  $24 \times (30/721)$  hours of correct one.

⇒ 75 hours of the first clock

=  $24 \times 30 \times (75/721)$  hours of correct one

=  $54000/721$  hours = 74 hours 53.7 min.

Hence the answer is 2:54 pm.

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7. If a man walks to his office at  $\frac{5}{4}$  of his usual rate, he reaches office 30 minutes early than usual. What is his usual time to reach office.

- (a) 2 hr                      (b)  $2\frac{1}{2}$  hr                      (c) 1 hr 50 min                      (d) 2 hr 15 min

Sol. (b)

$$\text{Usual time} \times \left(\frac{4}{5} - 1\right) = \frac{-30}{60}$$

$$\Rightarrow \text{usual time} = \frac{1}{2} \times 5 = 2\frac{1}{2} \text{ hr}$$

8. In the following numbers series, how many even numbers are immediately preceded by 6 as well as immediately followed by 3?

6 6 5 6 8 3 9 4 3 6 7 3 6 4 3 2 8 6 4 6 8 2 6 6 3

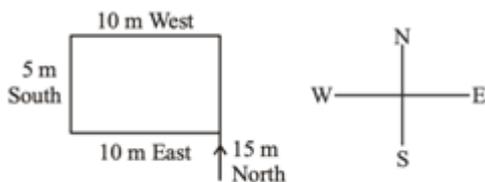
- (a) 1                      (b) 2                      (c) 3                      (d) 4

Sol. (c) 6 6 5 6 8 3 9 4 3 6 7 3 6 4 3 2 8 6 4 6 8 2 6 6 3

9. I went 15 m to the north, then I turned west and covered 10 m, then turned south and covered 5 m, and then turned east and covered 10m. In which direction am I from the starting point?

- (a) East                      (b) West                      (c) North                      (d) South

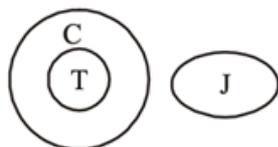
Sol. (c)



10. Which one of the following figures represents the relationship among 'Judge', Thief' and 'Criminal' ?

- (a)                      (b)                      (c)                      (d)

Sol. (a)



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11. At what angle are the hands of a clock inclined at 30 minutes past 6 ?

- (a)  $7\frac{1}{2}^{\circ}$                       (b)  $11\frac{1}{2}^{\circ}$                       (c)  $15^{\circ}$                       (d)  $23^{\circ}$

Sol. (c) Angle between hands of clock =  $\left|30H - \frac{11}{2}M\right|$

Where H → Hour hand, M → Minute hand

$$\therefore \left|30 \times 6 - \frac{11}{2} \times 30\right| = 15^{\circ}$$

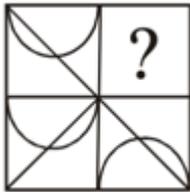
- (1) GIVE      BAT      GATE  
5137      927      5247

12. If GIVE is coded 5137 and BAT is coded as 924, how can GATE be coded?

- (a) 5247                      (b) 5724                      (c) 7254                      (d) 2547

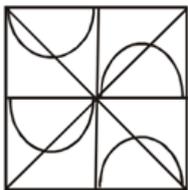
Sol. (a) GIVE                      BAT                      GATE  
5137                      924                      5247

13.

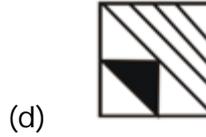
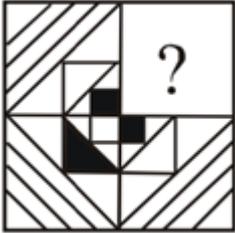


- (a)      (b)      (c)      (d)

Sol. (a)



14.



Sol. (a)



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## PART – II : MATHEMATICS

1. Find the greatest four digit number which when divided by 18 and 12 leaves a remainder of 4 in each case.

- (a) 9976                      (b) 9940                      (c) 9904                      (d) 9868

Sol. (a)

Required number = greatest 4 digit number – remainder + 4

Hence, the correct option is (a)

2. If  $x$  and  $y$  are whole numbers such that  $y^x = 19,683$  and  $y > x$  and  $1 < x < 4$ , then  $\sqrt[x]{y}$  is \_\_\_\_.

- (a) 13                      (b) 17                      (c) 3                      (d) 9

Sol. (c)

Given,

$$y^x = 19,683 \Rightarrow 27^3 = 19,683$$

$$\Rightarrow x = 3 \text{ and } y = 27$$

$$\therefore \sqrt[x]{y} = \sqrt[3]{27} = 3$$

Hence, the correct option is (c).

3. Which is the greatest among  $2^{156}$ ,  $4^{79}$ ,  $128^{23}$  and  $8^{54}$ ?

- (a)  $4^{79}$                       (b)  $128^{23}$                       (c)  $2^{156}$                       (d)  $8^{54}$

Sol. (d)

$$4^{79} = (2^2)^{79} = 2^{158}$$

$$128^{23} = (2^7)^{23} = 2^{161}$$

$$8^{54} = (2^3)^{54} = 2^{162}$$

$8^{54}$  is the greatest value.

Hence, the correct option is (d)

4. The polynomial  $x^4 + 12x^2 + 64$  on factorization gives \_\_\_\_\_

(a)  $(x^2 - 2x + 8)(x^2 + 2x - 8)$                       (b)  $(x^2 - 2x - 8)(x^2 + 2x + 8)$

(c)  $(x^2 + 2x - 8)(x^2 - 2x - 8)$                       (d)  $(x^2 - 2x + 8)(x^2 + 2x + 8)$

Sol. (d)

(i) Add and subtract a term to make the given expression a perfect square.

(ii) Take  $x^4 + 12x^2 + 64$  as  $(x^2)^2 + 16x^2 + 8^2 - 4x^2$

(iii) Use the formulae  $a^2 + 2ab + b^2 = (a+b)^2$  and  $a^2 - b^2 = (a+b)(a-b)$

Hence, the correct option is (d).

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5. If  $a=(2^{-2}-2^{-3})$ ,  $b=(2^{-3}-2^{-4})$ , and  $c=(2^{-4}-2^{-2})$  then find the value of  $a^3 + b^3 + c^3$ .
- (a)  $\frac{-9}{1024}$                       (b)  $\frac{-9}{2048}$                       (c) 0                      (d) 1

Sol. (b)  
(i)  $a + b + c = 0$   
(ii) Express all the terms with same base, i.e., 2.  
(iii) Equate the concerned terms and find x and y.  
Hence, the correct option is (b).

6. If  $x = \frac{4\sqrt{2}}{\sqrt{2}+1}$ , then find the value of  $\frac{x+2}{x-2} - \frac{x+2\sqrt{2}}{x-2\sqrt{2}}$ .
- (a) 2                      (b)  $12 + 8\sqrt{2}$                       (c)  $12 - 8\sqrt{2}$                       (d) -2

Sol. (b)  
(i) Find and from the given data and then apply componendo-dividendo rule in both cases.  
(ii) Add the results obtained in the above cases.  
Hence, the correct option is (b).

7. A manufacturer purchases a second-hand machine for ₹ 60,000 and spends some amount towards repairs then its value goes up to ₹ 90,000. If depreciation is 10% per annum, then what will be the value of the machine after two years?
- (a) ₹ 48,600                      (b) ₹ 81,000                      (c) ₹ 67,200                      (d) ₹ 72,900

Sol. (d)  
(i) Reduce the total value by 10% twice.  
(ii)  $A = P\left(1 - \frac{R}{100}\right)^2$ , where P is the present value and R is the rate of depreciation.  
Hence, the correct option is (d).

8. Sushma and Harika started a business with investments of ₹ 4500 and ₹ 5500, respectively. After 6 months, Sai joined them with an investment of ₹ 7000. Find the total share of Sushma and Harika in the annual profit of ₹ 27,000.
- (a) ₹ 11,000                      (b) ₹ 15,000                      (c) ₹ 20,000                      (d) ₹ 16,000

Sol. (c)  
(i) The ratio of investments is equal to the ratio of profits.  
(ii) Ratio of profits = Ratio of (investment × time period)  
Hence, the correct option is (c).

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9. Karthik marked an article at 60% above its cost price. He sold it at a profit after 2 successive discounts of 10% each. Find the profit percentage.

- (a) 40%                      (b) 35.5%                      (c) 20%                      (d) 29.6%

Sol. (d)

Let the cost price of the article be ₹ 100.

$$\begin{aligned}\text{Its marketed price (in ₹)} &= 100 \left(1 + \frac{60}{100}\right) \\ &= ₹ 160\end{aligned}$$

Its selling price = ₹ 160

$$\begin{aligned}\left(1 - \frac{10}{100}\right) \left(1 - \frac{10}{100}\right) \\ = ₹ 129.6\end{aligned}$$

∴ Profit percentage = 29.6%

Hence, the correct option is (d).

10. ₹ 2800 was split into two parts. One part was lent at 20% per annum simple interest for 10 years. The other part was lent at 25% per annum simple interest for 20 years. Each part yielded equal interest. Find the lower part (in ₹).

- (a) 800                      (b) 900                      (c) 1000                      (d) 1200

Sol. (a)

Let the one part be ₹  $x$ .

∴ The other part would be ₹  $(2800 - x)$ .

$$\frac{(x)(10)(20)}{100} = \frac{(2800 - x)(20)(25)}{100}$$

$$\Rightarrow 2x = 5(2800 - x)$$

$$x = 2000$$

∴ The lower part =  $2800 - x$

$$= 800$$

Hence, the correct option is (a).

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11. ₹ 6000 was lent at compound interest for 2 years. The rates of interest for the first and second years were 10% per annum and 30% per annum, respectively. If the rate of interest each year had been 20% per annum, then the additional amount obtained would have been (in ₹).
- (a) 60                      (b) 30                      (c) 90                      (d) 120

Sol. (a)

$$\begin{aligned}\text{Amount realised (in ₹)} &= 6000 \left(1 + \frac{10}{100}\right) \left(1 + \frac{30}{100}\right) \\ &= 6000 (1.1) (1.3) = 850 \quad (1)\end{aligned}$$

If the rate of interest each year was 20% per annum,

$$\begin{aligned}\text{then amount realised (in ₹)} &= 6000 \left(1 + \frac{20}{100}\right)^2 \\ &= 6000(1.2)^2 \\ &= 6000 (1.44) = 8640\end{aligned}$$

∴ Additional amount realised = ₹ 60

Hence, the correct option is (a).

12. In a fort, there are 1500 soldiers and they have provisions for 90 days. If 600 soldiers leave the fort and the remaining soldiers increase their consumption rate by 50%, then for how many days will the provisions last?
- (a) 80                      (b) 90                      (c) 100                      (d) 120

Sol. (c)

Let the consumption of each person per day = K kg.

Let the required time be x.

Quantity of food available in the fort = (K)(1500)(90) kg.

$$\begin{aligned}&\Rightarrow (K) (1500) (90) \\ &= \left(K + \frac{50}{100}(K)\right)(1500 - 600)(x) \\ x &= \frac{(2)(1500)(90)}{(3)(900)} = 100\end{aligned}$$

Hence, the correct option is (c).

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13. Two filling pipes P and Q are fitted to a tank. P is first opened for half the time taken by Q alone to fill the tank and then closed. Q is then opened for half the time taken by P alone to fill the tank. If the tank is full after a total of 6 h after P was opened, then for how long was Q opened? (in hours)

(a) 5                      (b) 4                      (c) 3                      (d) 2

Sol. (c)

(i) Let the time taken by P and Q to fill the tank individually be  $x$  h and  $y$  h, respectively and proceed.

(ii) Let P takes  $x$  h and Q takes  $y$  h.

(iii) Then P is opened for  $\frac{y}{2}$  h and Q for  $\frac{x}{2}$  h.

(iv) Frame the equations and solve for  $y$ , i.e.,

$$\frac{x}{2} + \frac{y}{2} = 6 \quad \text{and} \quad \frac{\frac{y}{2}}{x} + \frac{\frac{x}{2}}{y} = 1.$$

Hence, the correct option is (c).

14. A train P takes 40 s to cross a train 800 m long and having a speed of 30 m/s, in the opposite direction. It takes 120 s to cross another train twice its length and having the same speed and moving in the opposite direction to it. Find the length of the train P in metres.

(a) 600                      (b) 800                      (c) 1000                      (d) 1200

Sol. (b)

(i) Form the equations according to the given conditions by taking speed and length of the train p as  $s$  m/s and  $L$  m, respectively.

(ii) Let the length and speed of train P be  $l$  m and  $s$  m/s.

(iii) Frame the equations and solve for  $s$ .

Hence, the correct option is (b).

### PART – III : PHYSICS/ CHEMISTRY

1. Assertion (A): The work done by the gravity on an ascending body is negative.

Reason (R): The displacement and gravitational force are opposite in direction.

- (a) A and R are true and R is the correct explanation of A.  
(b) A and R are true, but R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) Both A and R are false.

Sol. (A) Work done is said to be negative when the displacement of a body is opposite in direction to the force. When a body is moving upwards the displacement is in the opposite direction to the gravitational force. Hence, the correct option is (a).

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2. Assertion (A): When a person swims, he pushes the water in the same direction as his motion. Reason (R): Both action and reaction act on the same body.

- (a) A and R are true and R is the correct explanation of A.
- (b) A and R are true, but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) Both A and R are false.

Sol. (D)

When a person swims, he pushes the water in backward direction and he moves in forward direction. So, A is incorrect. Action and reaction act on two different bodies, therefore, R is also incorrect. Hence, the correct option is (d).

3. Assertion (A): When a person steps out of a boat, the boat moves backwards.

Reason (R): The reaction force acting on the boat is in the opposite direction to the direction of movement of the person.

- (a) A and R are true and R is the correct explanation of A.
- (b) A and R are true, but R is not the correct explanation of A.
- (c) A is true but R is false.
- (d) Both A and R are false.

Sol. (A)

When a person steps out of a boat, the boat moves back. So, A is correct. The boat moves back due to the reaction force acting on the boat, where action is the motion of the person. So, R is the correct explanation for A. Hence, the correct option is (a).

4. If the velocity of a wave is  $200 \text{ m s}^{-1}$  and the time period of its source is  $0.001 \text{ s}$ , then its wave length is \_\_\_\_\_.

- (a) 2 m
- (b) 20 cm
- (c) 2 cm
- (d) 2 mm

Sol. (B)  $\text{Velocity} = f\lambda = \lambda/T$

$200 = \lambda / 0.001 = 0.2\text{m} = 20\text{cm}$  Hence, the correct option is (b).

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5. The time taken to complete 100 waves is 50 s. The frequency of the wave is \_\_\_\_\_ Hz.

- (a) 1                      (b) 2                      (c) 0.5                      (d) 5

Sol. (B)  $t = 50$  s,

$$\text{Frequency} = \text{number of waves} / \text{time taken} = 100 / 50 = 2 \text{ Hz}$$

Hence, the correct option is (b).

6. Two persons are talking behind the wall. We can differentiate their voices by \_\_\_\_\_ even if their pitch and amplitude are equal.

- (a) loudness              (b) quality              (c) timbre              (d) Both (b) and (c)

Sol. (B)

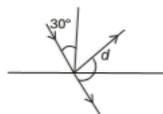
There are three important characteristics for sound to differentiate from one another, these are pitch, loudness and quality. Quality is also called timbre. If for two voices pitch and loudness are the same, by quality we can differentiate the voices. Hence, the correct option is (b).

7. A light ray incident on a reflecting surface with an angle of incident of  $30^\circ$ . The angle of deviation is \_\_\_\_\_.

- (a)  $60^\circ$                       (b)  $30^\circ$                       (c)  $120^\circ$                       (d)  $90^\circ$

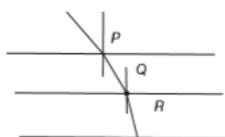
Sol. (C)

1.



At from the figure  $d = 180 - 60 = 120^\circ$  Hence, the correct option is (c).

8. A light ray travels from medium P to Q and R as shown below. If  $\mu_P$ ,  $\mu_Q$  and  $\mu_R$  are the refractive indices of the media P, Q and R, respectively, then find the relation between them.



- (a)  $\mu_P > \mu_Q$               (b)  $\mu_R < \mu_Q$               (c)  $\mu_R > \mu_P$               (d)  $\mu_P > \mu_Q$

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Sol. (c)

As the light ray travelling from P to Q and from Q to P bends towards the normal

$\mu_R > \mu_Q > \mu_P$ .  $\therefore \mu_R > \mu_P$  Hence, the correct option is (c).

9. The periscopes in which mirrors are used, \_\_\_\_\_ takes place

- (a) reflection (b) total internal reflection  
(c) refraction (d) scattering

Sol. (a) Refraction takes place in mirror periscopes Hence, the correct option is (a).

10. Assertion (A): Insulators cannot conduct electricity.

Reason (R): The electricity flowing through the solids is due to the flow of free electrons in them and insulators have less number of free electrons.

- (a) A and R are true and R is the correct explanation of A.  
(b) A and R are true, but R is not the correct explanation of A.  
(c) A is true but R is false.  
(d) Both A and R are false.

Sol. (b) The current in solids is due to the drift of free electrons. Insulators have less number of free electrons. Hence, the correct option is (b).

11. Match the statements of Column A with those of Column B

Column A

Column B

- |  |  |
|--|--|
| (A) Gold conering  | (a) Heating effect of electricity  |
| (B) Button Cell  | (b) Chemical effect of electricity                                       |
| (C) EMF  | (c) Volt   |
| (D) An electric stove  | (d) Zinc acts as anode   |
| (a) $A \rightarrow d; B \rightarrow a; C \rightarrow b; D \rightarrow c$ | (b) $A \rightarrow b; B \rightarrow d; C \rightarrow c; D \rightarrow a$ |
| (c) $A \rightarrow b; B \rightarrow a; C \rightarrow c; D \rightarrow d$ | (d) $A \rightarrow a; B \rightarrow c; C \rightarrow b; D \rightarrow d$ |

Sol. (b)

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A → b The working principle behind the gold covering is the chemical effect of electricity B → d In a button cell, zinc acts as the anode. C → c The unit of E.M.F is volt. D → a An electric stove works on the principle of heating effect of electricity. Hence, the correct option is (b).

12. Among the following, pick out the odd one.

- (a) Phobos (b) Shoemaker levy  
(c) Deimos (d) Moon

Sol. (b) Shoemaker levy is a comet, remaining options are natural satellites.

Hence, the correct option is (b).

13. Arrange the following planets in the increasing order of their orbital speed around the Sun.

- (A) Earth (B) Venus (C) Mars (D) Jupiter  
(a) EDDB (b) ADCB (c) CBDA (d) DCAB

Sol. (d)

The increasing order of orbital speed is Jupiter, Mars, Earth and Venus. Hence, the correct option is (d).

14. The average time gap between one full moon and the next full moon is \_\_\_\_\_ days.

- (a) 15 (b) 30 (c) 29.5 (d) None of these

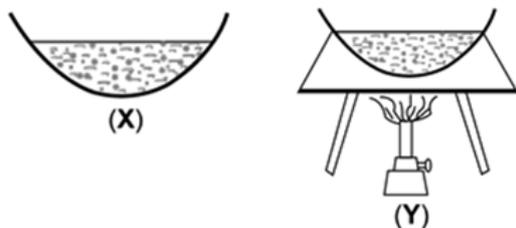
Sol. (c)

$29\frac{1}{2}$  day is the average time gap between one full moon and the next full moon. Hence, the correct option is (c).

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15. Rakesh mixed some iron filings with sulphur powder in a China dish. In another dish he mixed iron filings and sulphur powder and heated the mixture.

Which of the observation is not correct?



- (a) Dish X shows a physical change while dish Y shows a chemical change
- (b) In dish X sulphur powder and iron filings can be seen separately
- (c) In dish Y a new substance is formed on heating the mixture
- (d) The change which has taken place in dish Y is reversible

Sol. (d) In dish Y iron powder reacts with sulfur exothermically to form iron (II) sulphide. The chemical reaction occurs and it is irreversible and black iron sulphide is formed.

16. Few characteristics of three fuels X, Y and Z are given below

X	Y	Z
Not easily stored or transported	Can be stored in tanks and transported through pipes	Can be stored in tanks and transported through pipes
Extremely polluting	Produce almost no pollutants	Moderately polluting

Identify X, Y and Z respectively

- (a) LPG, Biogas, Coal
- (b) Coal, Natural gas, Petroleum
- (c) Petroleum, LPG, Coal
- (d) Natural gas, Cow dung cake, LPG

Sol. (b) Coal being a solid cannot be stored or transported easily and is extremely polluting. Natural gas is easy to store and transport through pipelines and is pollution free. Petroleum being a liquid fuel is easy to store and transport and is moderately polluting.

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17. Which of the following antiknocking agents added to petrol to avoid knocking in vehicles?

- (a) White                      (b) Carbon monoxide  
(c) Tetraethyl lead        (d) Indole

Sol. (c) Tetraethyl lead is used as antiknocking agent

18. Gold and silver are called noble metals because

- (a) They do not, normally, react in their natural environment  
(b) Ladies of royalty wear them as jewellery  
(c) They are worn by noblemen  
(d) Even acids cannot dissolve them without strong heat

Sol. (a) Fact

19. Arrange the following fuels in the increasing order of their calorific value.

(i) Petrol, (ii) Wood, (iii) Coal, (iv) Natural gas

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

Sol. (d)

Wood-17000-22000 KJ/Kg

Coal-25000-33000KJ/Kg

Petrol-45000KJ/Kg

Natural gas-50000KJ/Kg

20. Shyamkumar went to tailor shop to get a shirt stitched from him. He wanted a fabric that doesn't get wrinkled quickly. Help him to choose the correct fiber.

- (a) polyester                (b) Nylon                      (c) Cotton                      (d) Silk

Sol. (a) Polyester clothes do not get wrinkled easily

21. 2 mL each of concentrated HCl, HNO<sub>3</sub> and a mixture of concentrated HCl and concentrated HNO<sub>3</sub> in the ratio of 3 : 1 were taken in test tubes labeled as A, B and C. A small piece of metal was put in each test tube. No change occurred in test tubes A and B but the metal got dissolved in test tube C respectively. The metal could be

- (a) Al                              (b) Cu                              (c) Au                              (d) Fe

Sol. (c) Au is less reactive than H so it cannot displace H from either of these two acids but Aqua regia is the mixture in 3<sup>rd</sup> case which dissolves Au.



## KHOJ SAMPLE PAPER

25. Graphite is used in pencils. It leaves a black trace of writing on paper because it consists of layers of carbon atoms that

- (a) Are wound inside, like a long thread      (b) Are attracted by paper material  
(c) Fall easily      (d) Slide over each other

Sol. (d) Graphite is a crystalline form of carbon. It contains layer of carbon atoms. These layer can slip over one another because of weak force between them.

26. Match the following :

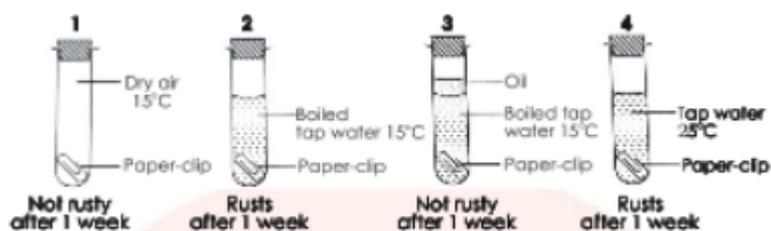
Column I	Column II
1. Rapid combustion	(p) Materials get ignited without any apparent cause
2. Spontaneous	(q) Fuel burns rapidly and produces heat and light
3. Explosion	(r) Fire extinguisher
4. Sodium bicarbonate	(s) Evolution of large amount of heat, light and sound

- (a) 1 – q, 2 – p, 3 – s, d – r      (b) 1 – p, 2 – q, 3 – r, 4 – s  
(c) 1 – r, 2 – s, 3 – q, 4 – p      (d) 1 – s, 2 – r, 3 – q, 4 – p

Sol. (a)

These are different categories of combustion and  $\text{NaHCO}_3$  is used in fire extinguisher because it releases  $\text{CO}_2$  which cuts off the fire.

27. Four experiments on rusting are shows below :



Which two experiments can be used to show that air is needed for iron to rust?

- (a) 1 and 3      (b) 1 and 4      (c) 2 and 3      (d) 2 and 4

Sol. (c) Presence of both air and water is required for rusting.

28. Which of the following properties of nylon are most convenient for its use?

- (a) it is soft, strong and heavy      (b) It is strong, elastic and light  
(c) It is soft, inexpensive and strong      (d) It is expensive, soft and light

Sol. (b) Nylon is strong, elastic and light.

# KHOJ SAMPLE PAPER

## PART – V : BIOLOGY

1. Which one of the following is the correct order of structural organisation of an organism?

- (a) Cells → Organs → Tissues → Organ system → Organisms
- (b) Cells → Tissues → Organs → Organ system → Organisms
- (c) Organs → Tissues → Organ system → Organisms → cells
- (d) None of these

Sol. (B)

2. Name the cell which has been shown in the following figure.



- (a) Muscle cells
- (b) Nerve cells
- (c) Bone cells
- (d) White blood cell

Sol. (B)

3. In which one of the following options, the various stages in the development of a silk moth, has been correctly arranged?

- (a) Egg → Pupa → Caterpillar → Silk moth
- (b) Egg → Caterpillar → Pupa → Silk moth
- (c) Egg → Silk moth → Pupa → Caterpillar
- (d) Egg → Silk moth → Caterpillar → Pupa

Sol. (B)

4. The disease chickenpox' is caused by which one of the following microorganisms?

- (a) Bacteria
- (b) Virus
- (c) Protozoa
- (d) Fungi

Sol. (B)

5. Which one of the following microorganisms is an example of algae?

- (a) Lactobacillus
- (b) Rhizobium
- (c) Chlamydomonas
- (d) Entamoeba

Sol. (c)

## KHOJ SAMPLE PAPER

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6. Preventive and control measures adopted for the storage of grains include

- (a) strict cleaning
- (b) proper disjoining
- (c) fumigation
- (d) all of the above

Sol. (d)

7. The posterior pituitary stores and releases :

- (a) Growth hormone and prolactin
- (b) Prolactin and oxytocin
- (c) Oxytocin and Antidiuretic hormone (ADH).
- (d) ADH and growth hormone.

Sol. (c)

8. Biogas is a better fuel than animal dung cake because

- (a) biogas has the lower calorific value.
- (b) animal dung cake has high calorific value
- (c) biogas burns smoke and leaves no residue
- (d) biogas is used as a fuel for cooking only whereas dung cake can be used for cooking, illuminating the lanterns

Sol. (c)

9. Synthetic material/chemical which depletes Ozone layer is

- (a) CFCs
- (b) CFLs
- (c) CO<sub>2</sub>
- (d) None of these

Sol. (a)

10. What is coliform?

- (a) Group of bacteria
- (b) Group of viruses
- (c) Group of microorganisms
- (d) Group of diseases

Sol. (a)

11. What is the name given for replenishment of forest?

- (a) Afforestation
- (b) Silviculture
- (c) Deforestation
- (d) Sericulture

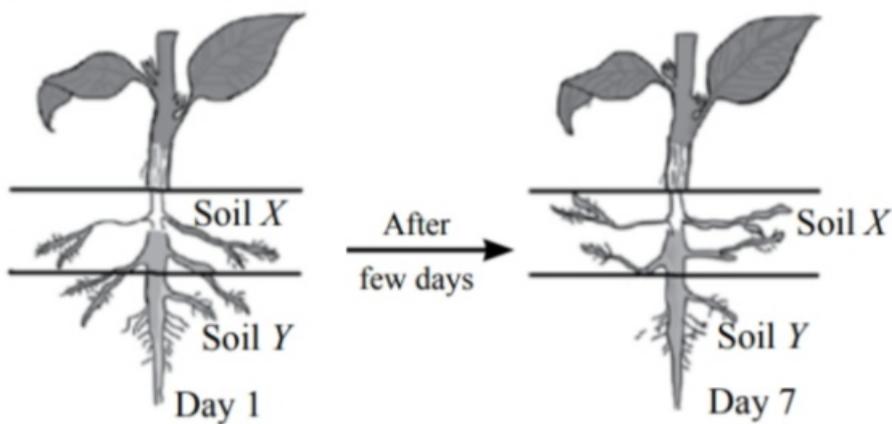
Sol. (a)

12. Why should we conserve forest and wild life?

- (a) To protect biodiversity
- (b) To maintain ecosystem
- (c) To maintain balance
- (d) To continue food chain

Sol. (b)

13. Tarun sets up a plant as shown in the figure. After a few days, the observed upward growth in the roots of the plant.



Based on his observations what can you conclude?

- (a) Soil X is clayey while soil Y is loamy
- (b) Soil X is sandy while soil Y is clayey
- (c) Soil X is loamy while soil Y is sandy
- (d) It is not possible to tell

Sol. (c)

14. Which of these is not an endocrine gland?

- (a) Pancreas
- (b) Testes
- (c) Salivary gland
- (d) Parathyroid

Sol. (c)

