BEST 2024

BOTHRA ENTRANCE AND SCHOLARSHIP TEST

Class VIII Studying Moving to Class IX

Physics, Chemistry Mathematics & Biology

INSTRUCTIONS FOR CANDIDATE

1. The Answer Sheet is provided to you separately which is a machine readable Optical Mark Recognition (OMR). You have to mark your answers in the **OMR** by darkening bubble, as per your answer choice, by using black & blue ball point pen.
2. Total Questions to be Attempted 40. (Mathematics-20), (Physics-8), (Chemistry-6), (Biology-6).
3. Marking Scheme:
   a. If darkened bubble is RIGHT answer: 4 Marks.
   b. If no bubble is darkened in any question: No Mark.
   c. If darkened bubble is WRONG answer: –1 Mark (Minus One Mark).
4. Think wisely before darkening bubble as there is negative marking for wrong answer.
5. If you are found involved in cheating or disturbing others then your OMR will be cancelled.
6. Do not put any stain on **OMR** and hand it over back properly to the invigilator.

Bothra CLASSES

MATHEMATICS
(Single correct option +4, -1)

1. What number should be added to $-\frac{4}{3}$ to get $\frac{4}{3}$.

   (a) 0 (b) $\frac{4}{3}$ (c) $\frac{8}{3}$ (d) $\frac{3}{4}$

2. $(17\times12)^{-1} = 17^{-1}\times$ _____

   (a) $\frac{1}{12}$ (b) 12 (c) 17 (d) $\frac{1}{17}$

3. If $-\frac{4}{5}\times\left(\frac{5}{7}\times\frac{-8}{9}\right)=\left(-\frac{4}{5}\times k\right)\times\frac{-8}{9}$, then k is equal to

   (a) $-\frac{5}{7}$ (b) $\frac{5}{7}$ (c) $\frac{4}{7}$ (d) None of these

4. If $\frac{6x+1}{3}+1=\frac{x-3}{6}$, then x = ?

   (a)1 (b) - 1 (c) 3 (d) – 3

5. Five year ago I was $\frac{1}{3}$ as old as my oldest sister, but now I am half her age. Therefore my present age is:

   (a) 10 (b) 22 (c) 24 (d) 26

6. $\frac{2^{nd}}{3}$ of a number when multiplied by $\frac{3^{th}}{4}$ of the same number makes 338. The number is –

   (a) 18 (b) 24 (c) 36 (d) 26

7. What least number must be subtracted from 1000 to make it a perfect square

   (a) 24 (b) 39 (c) 41 (d) 43

8. The smallest number by which 12348 must be divided to obtain a perfect square is

   (a) 3 (b) 4 (c) 5 (d) 7

9. A number is multiplied by $2\frac{1}{3}$ times it self and then 61 is subtracted from the product obtained. If the final result is 9200, then the number is _____.
(a) 36 (b) 63 (c) 67 (d) 37

10. A man sells 200 mangoes at the cost price of 250 mangoes. His profit percentage is _____.
(a) 12.5% (b) 25% (c) 20% (d) 25.5%

11. A sold an article for ₹420 at a gain of 5 % and B sold an article for ₹477 at a gain of 6%. Who got more profit and by how much?
(a) A, ₹ 10 (b) B, ₹ 7 (c) A, ₹ 8 (d) B, ₹10

12. A shopkeeper sold an article at 5% profit. If he had sold it at a profit of $17\frac{1}{2}\%$, then the profit would have been ₹ 25 more. What is the cost price of the article?
(a) ₹150 (b) ₹300 (c) ₹200 (d) ₹250

13. 100 persons has food provision for 24 days. If 20 person left the place, the provision will last for
(a) 30 days (b) $\frac{96}{5} day$ (c) 120 days (d) 40 days

14. There are 20 grams of protein in 75 grams of sautéed fish. How many grams of protein is in 225 gm of that fish.
(a) 90 gms (b) 60 gms (c) 45 gms (d)105 gms

15. If 45 students can consume a stock of food in 2 months, then for how many days the same stock of food will last for 27 students?
(a) 100 days (b) 144 days (c) 160 days (d) 180 days

16. The perpendicular distance of the point $P(3,4)$ from the y-axis is
(a) 3 (b) 4 (c) 5 (d) 7

17.

Class Intervals	Frequency
0 - 10	6
10 - 20	2
20 - 30	13
30 - 40	17
40 - 50	11
50 - 60	4
60 - 70	8
70 - 80	7

The class- mark of class 50-60 is :

(a) 50 (b) 60 (c) 55 (d) None of these

18. $\left(\frac{-1}{5}\right)^3 \div \left(\frac{-1}{5}\right)^8 = ?$

(a) $\left(\frac{-1}{5}\right)^5$ (b) $\left(\frac{-1}{5}\right)^{11}$ (c) $(-5)^5$ (d) $\left(\frac{1}{5}\right)^5$

19. By what number should $(-8)^{-1}$ be multiplied to get 10^{-1} ?

(a) $\frac{4}{5}$ (b) $\frac{-5}{4}$ (c) $\frac{-4}{5}$ (d) None of these

20. If $\left(2^{3x-1}+10\right) \div 7 = 6$, then x is equal to

(a) -2 (b) 0 (c) 1 (d) 2

PHYSICS
(Single correct option +4, -1)

1. The centre of sphere of which the spherical mirror forms a part is called-
   (a) Centre of curvature (b) Focus
   (c) Pole (d) Cataract
2. A person sees blurred images of all objects around him or her. That person is suffering from.
   (a) Myopia (b) Astigmatism
   (c) Colour blindness (d) Vertex
3. If angle between incident and reflected ray is 80^o. What will be angle of reflection?
   (a) 60^o (b) 30^o (c) 50^o (d) 40^o
4. For echo to take place, the minimum distance between the source of sound and the reflecting surface should be:
   (a)17 m (b) 1.7 m (c) 0.17 m (d) 34 m
5. The bob of a simple pendulum is oscillating with a frequency of 25 Hz. How much time will be pendulum take to make 100 oscillations?
   (a)1 s (b) 2 s (c) 4 s (d) 6 s
6. Water waves in the sea are observed to have a wavelength of 300m and a frequency of 0.07 Hz. The speed of these waves is
   (a) 0.00021 m/s (b) 2.1 m/s (c) 21 m/s (d) 210 m/s
7. Which celestial body that revolves around the sun in a highly elliptical orbit?
   (a) Comet (b) Meteors (c) Asteroids (d) Planets
8. Which planet is called morning star or evening star?
   (a) Satum (b) Mars (c) Jupiter (d) Venus

CHEMISTRY
(Single correct option +4, -1)

1. Which of the following petroleum content boils at temperatures greater than 350^o C?
   a) Diesel oil b) Petroleum gas c) Lubricating oil d) kerosene
2. Which of the following is the characteristic of exhaustible natural resources?
   a) They are unlimited b) They are limited
   c) They are not dependent on nature d) All of the above

3. What is the primary element of liquified petroleum gas and compressed natural gas?
   a) Butane and hexane b) Methane and hexane
   c) Methane and butane d) butane and pentane
4. Which of the following units expresses fuel efficiency in terms of calorific value?
   a) kg/kJ b) kJ/kg c) J/kg d) J/g
5. It is dangerous to burn wood in a room. The gas X produced can be fatal to the person sleeping in the room. Identify the gas X.
   a) CO_2 b) SO_2 c) CO d) N_2
6. Which of the following are necessary requirements for producing a fire?
   a) Fuel, N_2, Heat b) CO_2, Water, O_2 gas
   c) Fuel, O_2, Water d) Fuel, O_2, Heat

BIOLOGY

(Single correct option +4, -1)

1) The process of loosening and turning of the soil is called tilling or ploughing.
   (1) This is done by using a plough. Ploughs are made of wood or iron.
   (2) If the soil is very dry, it may need watering before ploughing.
   (3) The ploughed field may have big clumps of soil called crumbs. It is necessary to break these crumbs.
   (4) Levelling the field is beneficial for sowing as well as for irrigation. Levelling of soil is done with the help of a leveller.
   Find the correct option for the above information:-
   (a) Only (1) is correct (b) Only (1) and (3) are correct
   (c) all are correct (d) none of these
2) In a field many other undesirable plants may grow naturally along with the crop.
   (1) These undesirable plants are called weeds.
   (2) The removal of weeds is called weeding.
   (3) Weeding is necessary since weeds compete with the crop plants for water, nutrients, space and light.
   (4) They not affect the growth of the crop. Some weeds interfere even in harvesting and may be poisonous for animals and human beings.
   (a) only (1) is correct
   (b) only (2) and (4) are correct
   (c) All are correct
   (d) (1), (2) and (3) are correct

3) The bacteria which are present in the nodules of roots of leguminous plants. They fix atmospheric nitrogen are called
(a) Rhizobium
(b) Nostoc
(c) Azotobacter
(D) Anabaena

4) Those species of plants and animals which are found exclusively in a particular area are called :-
(a) Endemic species
(b) Epidemic species
(c) Allopatric species
(d) Sympatric species

5) Wildlife Sanctuaries like reserve forests provide protection and suitable living conditions to wild animals.
Which of the following statement is incorrect?
(a) Some of the threatened wild animals like black buck, white eyed buck, elephant, golden cat, pink headed duck, gharial, marsh crocodile, python, rhinoceros, etc., are protected and preserved in our wild life sanctuaries.
(b) Indian sanctuaries have unique landscapes-broad level forests, mountain forests and bush lands in deltas of big rivers.
(c) People living in wildlife sanctuaries are allowed to do certain activities such as grazing by their livestock, collecting medicinal plants, firewood, etc.
(d) Animals whose numbers are diminishing to a level that they might face extinction are not known as the endangered animals

6) Find the incorrect statement.
(a) India contains 172 species of animals considered globally threatened or 4.9% of the world's total number of threatened species.
(b) Eastern Himalayas hotspot has merely 163 globally threatened species including several animal and plant species.
(c) India contains globally important population of some of Asia's rarest animals such as the Bengal fox, Marbled cat, Asiatic lion, Indian elephant, Asiatic wild ass, Indian rhinoceros, gaur, Wild asiatic water buffalo, etc.
(d) India is sixth on a list of 12 mega-biodiversity countries in the world. It contains two of the 34 biodiversity hotspots of the world – Eastern Himalayas and the Western Ghats. These areas are very rich in biodiversity.