

Class-VIII CBE-SEP'2023 BHOPAL REGION

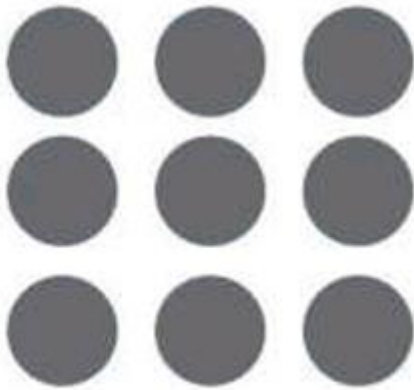
ANSWER KEY

SECTION-A-MATHEMATICS

SQUARE & SQUARE ROOTS, CUBE & CUBE ROOTS

For a school performance, an equal number of students are to be arranged in each row and column. 9 students can be arranged as shown in Arrangement 1.

Question 1: How many students can be added in a row/column in Arrangement 1 for 1225 students?



Arrangement 1

34

32

33

35

Feedback for correct answers

Let the number of rows and no. of columns be x each

When students are 9 ,

No of rows= no of columns= 3

i.e. $x \cdot x = x^2 = 3^2 = 9$

Similarly,

When students are 1225

$X \cdot x = x^2 = 1225$

So , $x = 35$

To make no of rows= no of columns= 35

We need $35-3=32$ more rows.

QUESTION 2: The teachers organising the performance think that it will be difficult to arrange 1225 students in one group. They think of dividing the group into two square arrangements. How many students can be there in each arrangement?

$$625+600$$

$$441+784$$

$$325+900$$

$$400+825$$

Feedback for correct answers

As both the groups must contain no. Of students equal to a square no.

$625+600 > 600$ is not a square number

$441+784=21^2+28^2$ both are square numbers

Similarly

$325, 825$ are not square numbers

QUESTION 3: There are 500 children in a school. For a P.T. drill they have to stand in such a manner that the number of rows is equal to number of columns. How many children would be left out in this arrangement.

15

16

20

25

Feedback for correct answers

Total number of children in a school = 500

For P.T. Drill number of rows = number of columns = x

The number of children who will be left out = $500 - x^2$

. The square root of 500 gives remainder as 16 that means, the square of 22 is less than 500 by 16

To make it a perfect square = $500 - 16 = 484$

Therefore, number of children left will be 16

QUESTION 4: Assertion (A) – Non square numbers lie between the pair of 80^2 & 81^2 are 160.

Reasons (R) – Squares of 12 and 13 and then subtract square of 12 from square of 13 also excluding 12^2 & 13^2 we get numbers of non-square numbers.

Both A and R is true and R is correct explanation of A.

A is true but R is false

Both A and R is true but R is not correct explanation of A.

A is false but R is true.

Feedback for correct answers

Square of 12 = $12^2 = 144$

And square of 13 = $13^2 = 169$

As 12 and 13 are consecutive numbers so all numbers between their squares will be non-square numbers.

Therefore, $169 - 144 = 25$

Total number of numbers between 169 and 144 (i.e., excluding 144 and 169) = $25 - 1 = 24$.

$$81^2 = 6561$$

$$80^2 = 6400$$

$$6561-6400=161$$

$$161-1=160$$

QUESTION 5: Assertion (A) –The one's digit of the cube of the number 249 is 9.

Reasons (R)–A perfect cube is a number that can be expressed as the product of an integer by itself or as the second exponent of an integer.

Both A and R is true and R is correct explanation of A.

Both A and R is true but R is not correct explanation of A.

A is true but R is false

A is false but R is true.

Feedback for correct answers

$$9 \times 9 = 81$$

81's once digit i.e.1 when again multiplied with 9 get $1 \times 9 = 9$

So 9^3 has 9 as once digit.

QUESTION 6: Choose the odd one out:

$$400+40+40+4$$

$$100+20+20+4$$

$$1400+80+80+4$$

$$900+60+60+4$$

Feedback for correct answers

$$100+20+20+4$$

$$\text{Means } 10^2+2 \times 10+2 \times 10+4$$

$$\text{Equation is } a^2+2a+2a+4$$

Similarly,

$$400+40+40+4 = 20^2+2 \times 20+2 \times 20+4$$

$$900+60+60+4 = 30^2+2 \times 30+2 \times 30+4$$

Only $1400+80+80+4$ does not satisfied that equation

QUESTION 7: The cube of a number is divided by the double of the same number. The resulting number is four times the given number. Find the number.

6

7

8

9

Feedback for correct answers

Use hit and trail method

$$8^3=512$$

$$8 \times 2 = 16$$

$$512 \div 16 = 32 = 8 \times 4$$

32 is four times of 8

Question 8: Find the length of each side of a cube if its volume is 5832000 cm^3 .

3.6 cm

0.12 cm

180 cm

360 cm

Feedback for correct answers

Consider the given volume of cube 5832000 cm^3

Now, let side of the cube is $=x$

Now,

$$X^3 = 5832000$$

Using prime factorisation method we will find

Cube root of 5832000 is 180

Hence $x=180\text{cm}$

QUESTION 9: A three digit perfect square is such that if it is viewed upside down, the number seen is also a perfect square. What is the number?

(Hint: The digits 1, 0 and 8 stay the same when viewed upside down, whereas 9 becomes 6 and 6 becomes 9.)

144

169

441

289

Feedback for correct answers

Given, the number is a three digit perfect square.

If viewed upside down, the number seen is also a perfect square.

We have to find the number.

The numbers 0, 1 and 8 will look the same when viewed upside down.

The number 6 becomes 9 and 9 becomes 6 when viewed upside down.

Let us consider a three digit perfect square 196.

Square of 14 = 196

On viewing the number 169 upside down, we get 961

Square of 31 = 961

Therefore, the required three digit perfect square is 169.

QUESTION 10: Find the tens digit of the cube root of the following number: 226981

- 1
- 3
- 6
- 9

Feedback for correct answers

Unit digit of 226981 = 1

Cube root of 226981 = 1

After striking out the units, tens and hundreds digits of 226981, now we left with 226 only.

We know that 6 is the Largest number whose cube root is less than or equal to 226($6^3 < 226 < 7^3$). \therefore The tens digit of the cube root of 226981 is 6.

SECTION CHOICE

After section 2

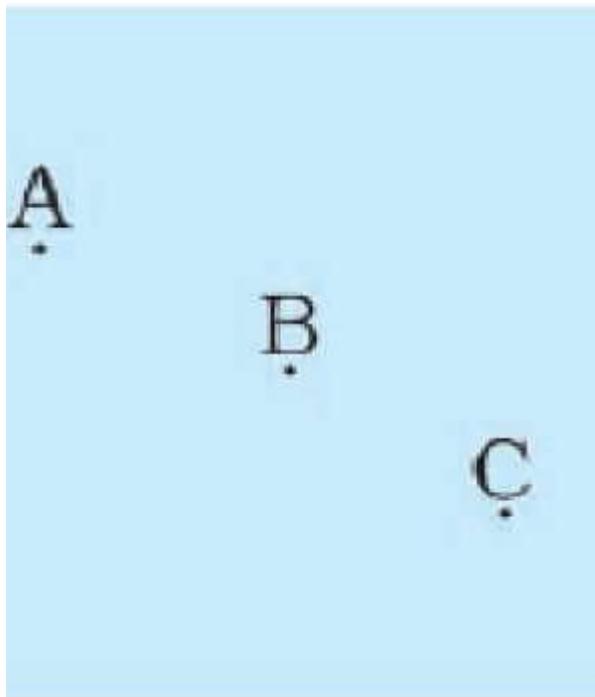
Continue to next section

Section 3 of 4

SECTION-B-SCIENCE

TOPICS - FORCE AND PRESSURE, FRICTION

Q 11 A container is filled with water as shown in the given figure. Which of the following statements is correct about pressure of water?



- (a) Pressure at A > Pressure at B > Pressure at C
- (b) Pressure at A = Pressure at B = Pressure at C
- (c) Pressure at A < Pressure at B > Pressure at C
- (d) Pressure at A < Pressure at B < Pressure at C

Feedback for correct answers

The correct option is (d) Pressure at A < Pressure at B < Pressure at C

Liquid pressure at a point is caused by the weight of the liquid pressing from above.

More the height of the column of the liquid above that point, the more will be the weight of the liquid pressing from above, and hence, more will be the liquid pressure at that point.

In other words we can say that, liquid pressure increases as the depth increases.

Since point A is at the least depth inside the liquid as compared to points B and C, the pressure at that point will be the minimum. Similarly, pressure at point B will be less than that at point C.

Q12 who objects repel each other. This repulsion could be due to

- (a) frictional force only
- (b) electrostatic force only
- (c) magnetic force only
- (d) either a magnetic or an electrostatic force

Feedback for correct answers

Answer: The objects repel each other because they carry similar charges. If they carried opposite charges they would have attracted.

Q 13 The force exerted by a charged body on another charged or uncharged body is called

- (a) gravitational force
- (b) electrostatic force
- (c) non-contact force
- (d) contact force

Feedback for correct answers

The correct option is (b) electrostatic force

The force exerted by a charged body on another charged or uncharged body is known as electrostatic force.

Q 14 A spring balance is used for measuring

points

- (a) mass
- (b) weight
- (c) pressure
- (d) speed

Feedback for correct answers

A spring balance is used to measure the weight of an object and the mass is measured by a beam balance.

Q 15 Two boys A and B are applying force on a block. If the block moves towards the boy A, which one of the following statements is correct?

- (a) Magnitude of force applied by A is greater than that of B.
- (b) Magnitude of force applied by A is smaller than that of B.
- (c) Net force on the block is towards B.
- (d) Magnitude of force applied by A is equal to that of B.

Feedback for correct answers

The correct option is (b), Magnitude of force applied by A is greater than that of B.

We know that if the net force on a stationary object is non-zero, the object moves. In this case, the object is moving in the direction of force applied by A. Hence, A is applying more force than B

Q 16 Which of the following produces least friction?

- (a) Sliding friction
- (b) Rolling friction
- (c) Composite friction
- (d) Static friction

Feedback for correct answers

The correct option is (b) Rolling friction

Rolling friction produce minimum friction

Q 17 Static friction is less than

- (a) sliding friction
- (b) rolling friction
- (c) both (a) and (b)
- (d) none of these

Feedback for correct answers

The correct option is D. none of these

Static friction has larger value than sliding and rolling friction.

Q 18 Whenever the surfaces in contact tend to move or move with respect to each other, the force of friction comes into play

- (a) only if the objects are solid.
- (b) only if one of the two objects is liquid.
- (c) only if one of the two objects is gaseous.
- (d) irrespective of whether the objects are solid, liquid or gaseous

Feedback for correct answers

The correct option is D

Irrespective of whether the objects are solid, liquid or gas

Q 19 If we apply oil on door hinges, the friction will

- (a) increase
- (b) decrease
- (c) disappear altogether
- (d) will remain unchanged

Feedback for correct answers

Option (B):

1. Friction is the force that opposes the motion of a body.
2. It acts between the surface of contact of the body and on which it is moving.
3. It acts according to Newton's third law of motion.
4. In order to perform a motion, the force applied to start the motion must be greater than the frictional force.
5. Hence, upon applying oil on door hinges, the friction decreases.

Q 20 Smooth surface has

- (a) less friction
- (b) more friction
- (c) sometimes less and sometimes more
- (d) all of these

Feedback for correct answers

- a) Less friction

A smooth surface has less friction.

Explanation:

Fiction:-

- Friction is a labour force that opposes motion between any shells that are touching. Friction can cause for or against us. For illustration, laying sand on an icy sidewalk increases friction so you're less probable to slip.
- On the different side, too major friction between shifting zone in an auto motor can create the region to wear out.
- A rough face will have more friction because on a rough face there will subsist further irregularities. They will create interlocking which in wander creates a further frictional workforce.
- For a smooth face, irregularities and interlocking are less and hence have veritably lower friction.

After section 3

Continue to next section

Section 4 of 4

SECTION-C-SOCIAL STUDIES

TOPICS -JUDICIARY, WHEN PEOPLE REBEL 1857 AND AFTER

Question 21: The revolt of 1857 started from -

Bareilly

Delhi

Agra

Meerut

Feedback

The revolt began on May 10, 1857, at Meerut as a sepoy mutiny. It was initiated by sepoys in the Bengal Presidency against the British officers

Question 22: Which emperor blessed and patronized the revolt of 1857 ?

Mir Zafar

Bahadur Shah Zafar

Bakht Khan

None of these

Feedback

Bahadur Shah Zafar blessed the mutiny and this event changed the situation and gave strength to the Sepoy mutiny.

Question 23: Who was given the title of viceroy after the revolt of 1857 ?

Governor General

Army Commander

Chief Commissioner

None of these

Feedback

The Governor-General was given the title of Viceroy or Crown's personal representative. Lord Canning became the first Viceroy.

Question 24 : Subsidiary Alliance was imposed on Awadh in -

1800

1801

1805

1811

Feedback

The Nawab of Awadh was forced to accept the Policy of Subsidiary Alliance by Wellesley in 1801.

Question 25: What was done by the British to reform the Indian Society ?

Law against Sati

Widow Remarriage

English Education

All of the above

Feedback

The Bengal Sati Regulation Act was passed in 1829, declaring the practise of Sati as illegal. They also passed the Widow Remarriage Act in 1856.

Question 26: Who has the power and responsibility to interpret the Constitution of India ?

Government

Legislature

Judiciary

Executive

Feedback

The interpretation of the constitution which the Supreme Court shall make must be accepted by all. It interprets the constitution and preserves it.

Question 27: When was the first High Court under the British rule established in India?

1862

1872

1900

1905

Feedback

On 1 July, 1862, with Sir Barnes Peacock as its first Chief Justice, the High Court of Judicature at Fort William was officially opened.

Question 28 : Judiciary in India resolves the disputes between the -

Central and State Govt.

Govt. and Citizens

Citizens and Citizens

All of the above

Feedback

The Indian Judiciary system resolves disputes between citizens, between different states and between the Central government and state governments.

Question 29: In India Judiciary is considered as -

Independent

Under the Govt.

Under the Parliament

Under the President

Feedback

The courts are not under the government. The independent functioning ensures that no power is misused by the executive or the legislature.

Question 30: How many levels of Judiciary are functional in India ?

One

Two

Three

Four

Feedback

There are three levels of courts in India. These are the district court, high court and supreme court.