

**CLASS**  
**6**

# **BVPY QUESTION PAPER – STAGE 2**

**Feb. 07, 2021**

Part A – Mathematics (Q1 to Q30)

Part B – Science (Q1 to Q30)

**Maximum Marks: 100**

**Duration : 180 minutes**

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## **Instructions for Students :**

1. This paper consists two parts i.e. Part ‘A’ (Mathematics) Q.1 to 30, Part ‘B’(Science) Q1 to 30.
2. For rough work please use last two pages.

### SECTION 1 (Maximum Marks: 15)

- Full Marks** : +1 If only the bubble corresponding to the correct option is darkened

**Negative Marks :** –0.25 In all other cases

- (i)      (ii)      (iii)

- B.    T    T    F

- C. F F T

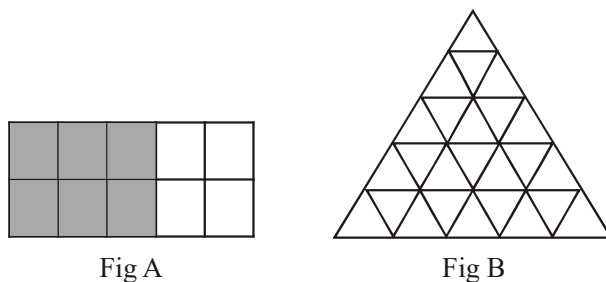
- D. F T T

- 
- A horizontal number line is shown, ranging from 0 to 16. Major tick marks are labeled with integers from 0 to 16. There are also minor tick marks between the major ones. Starting at the number 6, there are five curved arrows pointing to the right, each representing a jump of 1 unit. The arrows end at 7, 8, 9, 10, and 11.

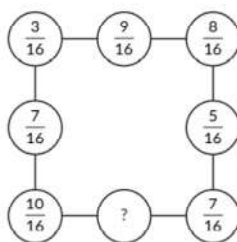
- B. 13 - 6

- D. None of these

4. How many parts of Fig.B must be shaded to represent the same fraction as represented by Fig.A ?







- A. 10  
B. 15  
C. 12  
D. 18
5. 15 men can finish a piece of work in 40 days. The number of days in which the same work can be done by 20 men is \_\_\_\_\_.
- A. 20  
B. 30  
C. 48  
D. 15
6. Aman got Rs. 100 and he went and bought 6 identical candies. He is now left with Rs.  $x$ . Find the price of one candy in terms of  $x$ .
- A. Rs.  $100 - 6x$   
B. Rs.  $\frac{100x}{6}$   
C. Rs.  $\frac{100 - x}{6}$   
D. Rs.  $100 - \frac{x}{6}$
7. What should be placed in the place of '?' so that sum of fractions on each side of the quadrilateral is the same ?

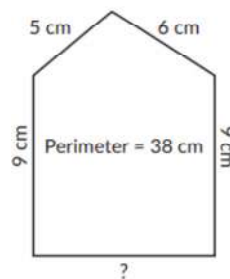


- A.  $\frac{2}{16}$   
B.  $\frac{3}{16}$   
C.  $\frac{5}{16}$   
D.  $\frac{4}{16}$
8. Which of the following equations has a solution in natural numbers ?
- A.  $x + 1 = 1$   
B.  $2x - 5 = 11$   
C.  $5x + 9 = 4$   
D.  $3x - 2 = 5$

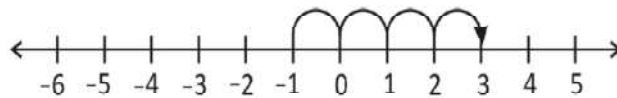
9. Megha made a frequency table to show the age-groups of school students. Select the age group that has the maximum number of students in it and its total number.

AGE GROUP	Group 1 (5 - 7)	Group 2 (8 - 10)	Group 3 (11 - 13)	Group 4 (14 - 15)
NUMBER OF STUDENTS (Tally Marks)				

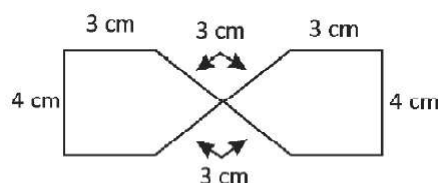
- A. Group 2, 10  
B. Group 2, 11  
C. Group 3, 10  
D. Group 3, 11
10. Find the missing length in the given figure.



- A. 8  
B. 10  
C. 9  
D. 11
11. Write the statement for the integer which is represented on the following number line.

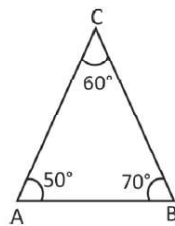


- A. 4 more than - 1  
B. 3 more than 5  
C. 5 less than 3  
D. 2 less than - 3
12. Which one of the following letters of English alphabet does not have any line of symmetry?
- A. N  
B. A  
C. B  
D. All of these
13. Find the perimeter of the given figure.



- A. 40 cm  
B. 41 cm  
C. 32 cm  
D. 48 cm

14. Which one of the following is correct about the given triangle?



- A. All angles are right angles  
B. All angles are obtuse angles  
C. The sum of the angles of the triangle is more than  $180^\circ$   
D. All angles are acute angles
15. Find the expression which is formed by 'fifth multiple of n is added with 17'.
- A. 5th  
B.  $5n + 17$   
C.  $5 + 17n$   
D. All of these

**SECTION 2 (Maximum Marks: 20)**

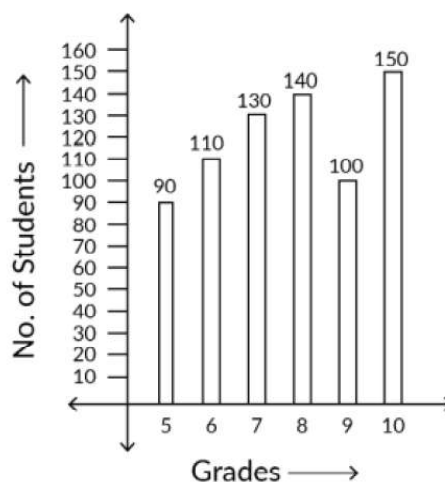
- This section contains Q.16 to Q. 25.
- Each question has **FOUR** options 'A', 'B', 'C' and 'D'. **ONLY ONE** of these four options is correct
- For each question, marks will be awarded in one of the following categories:

**Full Marks** : +2 If only the bubble corresponding to the correct option is darkened

**Zero Marks** : 0 If none of the bubbles is darkened

**Negative Marks** : -0.50 In all other cases

**Directions (16 – 17) :** Observe the given bar graph carefully and answer the following questions.



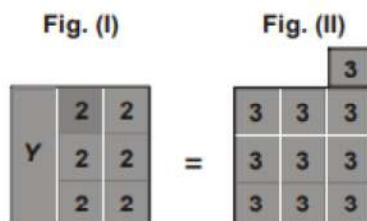
16. What fraction of the total number of students are in Grade 8 ?
- A.  $\frac{7}{72}$  B.  $\frac{5}{36}$   
 C.  $\frac{7}{36}$  D.  $\frac{5}{72}$
17. What is the difference between the number of students of Grade 7 and Grade 9 taken together and the number of students of Grade 5 and Grade 6 taken together ?
- A. 20 B. 40  
 C. 10 D. 30
18. Place value of a digit becomes ..... times as it moves place by place from left to right.
- A. 100 B.  $\frac{1}{10}$   
 C.  $\frac{1}{50}$  D. None of these
19. Alka ordered 17 cases of pens. Each case holds 12 boxes and each box holds 48 pens. How many pens did alka order altogether ?
- A. 9542 B. 9312  
 C. 9792 D. 8472
20. Which set of numbers lists all the digits that can occupy the blank space in the number 98257\_6 such that the number is divisible by 4 ?
- A. {1, 3, 5, 7, 9} B. {1, 3, 4}  
 C. {0, 2, 3} D. {2, 3, 4, 5}
21. If the length of a paddy field is 100 *m* and breadth is 80 *cm*. Then the ratio of its breadth to its perimeter is :
- A. 5 : 4 B. 4 : 5  
 C. 2 : 9 D. None of these
22. The given table shows the area, in square kilometres, of four lakes. Lake *E* has a greater area than Lake *M* but a smaller area than Lake *S*. Which could be the area of Lake *E* ?

Area of Four Lakes

Lake	Area (km <sup>2</sup> )
H	59,600
M	57,800
S	82,100
O	18,960
E	?

- A. 76,760 *km*<sup>2</sup> B. 57,800 *km*<sup>2</sup>  
 C. 25,700 *km*<sup>2</sup> D. 18,960 *km*<sup>2</sup>

23. In figures (I) and (II) areas of each smaller part is written in it. If area of figure (I) is equal to area of figure (II), then find the value of  $Y$ ?



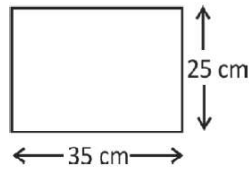
- A. 2  
B. 12  
C. 18  
D. 4
24. The speed of a bike is  $56\text{ km}$  per hour and speed of a bus is  $40\text{ km}$  per hour. Find the ratio of speed of bike to the speed of bus.
- A.  $5 : 7$   
B.  $7 : 5$   
C.  $4 : 9$   
D.  $2 : 5$
25. The  $LCM$  of two numbers is 144 and their  $HCF$  is 8. If one number is 18, then the other number will be:
- A. 12  
B. 4  
C. 64  
D. 16

### SECTION 3 (Maximum Marks: 15)

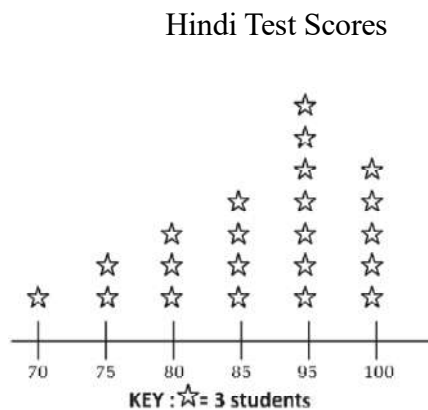
- This section contains Q.26 to Q. 30.
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***Negative Marks*** : –1 In all other cases

26.  $13 + [-4 + \{5 + 3(7 - 6) \times 5\} + 2] = ?$
- A. 21  
B. 31  
C. 27  
D. 33

27. What would be the longest length of a stick which can measure the length of the boundary in exact number of times in the figure below?



- A. 6 cm  
B. 7 cm  
C. 5 cm  
D. 8 cm
28. The following pictograph shows how students scored in last week's Hindi test.



- How many students scored more than 74 but less than 96 marks?
- A. 44 students  
B. 48 students  
C. 18 students  
D. 21 students
29. The fraction  $\frac{1}{8}$  as a decimal is  $A$  and  $\frac{3}{9}$  th of 117 is  $B$  and 10 Crores is equal to  $C$  millions. Find the value of the expression.  $A \times C + B$
- A. 57.125  
B. 56.65  
C. 51.5  
D. 65.25
30. Find the value of  $-26 - 20 + 33 - (-33) + 24 + 21 - (-25) - 26 - 14$ .
- A. 60  
B. 56  
C. 50  
D. 24



### SECTION 1 (Maximum Marks: 15)

- Full Marks** : +1 If only the bubble corresponding to the correct option is darkened

**Zero Marks** : 0 If none of the bubbles is darkened

**Negative Marks :** –0.25 In all other cases

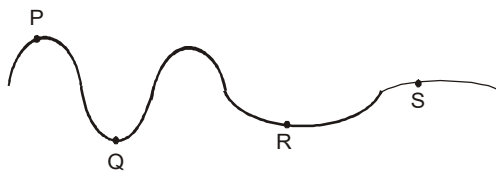
- 9

7. When more quantity of salt is added to a saturated solution that contains excess of salt, then it :
- A. Settles down at the bottom of the container
  - B. Starts dissolving
  - C. Reacts with the solvent (water)
  - D. None of these
8. Kerosene or edible oil do not dissolve in water. They are called :
- A. Immiscible liquids
  - B. Liquid solvents
  - C. Liquid solutes
  - D. Miscible liquids.
9. In a cloud, the size of the droplets increases causing rainfall because
- A. They become heavier
  - B. They become light
  - C. They convert into steam
  - D. Of reflection of light
10. Which of the following is a reversible change.
- A. Digestion of food
  - B. Burning of paper
  - C. Sublimation
  - D. All of these
11. Which of the following are the primary products of photosynthesis in plants ?
- A. Fats
  - B. Minerals
  - B. Proteins
  - D. Carbohydrates
12. Which of the following sets belong to deserts ?
- A. Opuntia, Camel, Pine
  - B. Yak, Cow, Rat
  - C. Cactus, Babool, Camel
  - D. Hydrilla, Snake, Fish
13. Piyush does not consume protein-rich food for a long time. Which of the following disorders can he face ?
- A. Poor vision
  - B. Swelling of face
  - C. Weak teeth
  - D. Bleeding gums
14. The stem(s) of which of the following plants is/are the source of food ?
- A. Ginger
  - B. Potatoes
  - C. Garlic
  - D. All of these
15. Which of the following vitamin is required for clotting of blood ?
- A. Vitamin A
  - B. Vitamin K
  - C. Vitamin B
  - D. Vitamin E

## SECTION 2 (Maximum Marks: 20)

- This section contains Q.16 to Q. 25.
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16. A ball was rolled down a slope ab shown in the diagram below :



at which point did the ball have the greatest potential energy

- A. P    B. Q  
C. R    D. S

17. If the two terminals of a cell are connected directly with a wire, then :

- A. More electrical energy will be stored in the cell
- B. No current will flow in the wire
- C. The chemical gets used up very fast
- D. Nothing will happen

18. Venus is a brightest planet because of the

- A. ozone layer around it.                      B. cloudy atmosphere of nitrogen.  
C. cloudy atmosphere of carbon dioxide.    D. layer of jugnus around it.

19. Match the column :

### Column 'A'

- (i) Smallest planet
- (ii) Reddish planet
- (iii) Largest planet

- A. (i)–C., (ii)–A., (iii)–B.  
C. (i)–B., (ii)–A., (iii)–C.

### Column 'B'

- A. Mars
- B. Jupiter
- C. Mercury

- B. (i)–A., (ii)–B., (iii)–C.  
D. (i)–A., (ii)–C., (iii)–B.

20. Refer to the given paragraph and select the correct option regarding X, Y and Z. The process of making yarn from fibres is called X. Yarn are used for making fabrics. Two main processes are used to make fabrics from yarn. In process Y, two sets of yarn are arranged together to make a fabric, while in process Z single yarn is used to make a piece of fabric.

- A. X : Knitting; Y : Spinning; Z : Weaving  
 B. X : Spinning; Y : Weaving; Z : Knitting  
 C. X : Weaving; Y : Spinning; Z : Knitting  
 D. X : Spinning; Y : Knitting; Z : Weaving

21. Match column I with column II and select the correct option from the given codes.

Column I

P. Chalk-water mixture

Q. Glucose solution

R. Fizzy drink

S. Smoke

T. Air

A. P-(iii), Q-(iv), R-(v), S-(i), T-(ii)

C. P-(ii), Q-(i), R-(iv), S-(v), T-(iii)

Column II

(i) A gaseous mixture

(ii) A solid-gas mixture

(iii) A homogeneous solid-liquid mixture

(iv) A heterogeneous solid-liquid mixture

(v) A gas-liquid mixture

B. P-(v), Q-(iii), R-(iv), S-(ii), T-(i)

D. P-(iv), Q-(iii), R-(v), S-(ii), T-(i)

22. Few changes are given below. Mark the correct option from the given codes.

(i) Milk is set to form curd.

(ii) Water is boiled to form steam.

(iii) Salt is dissolved in water to form solution.

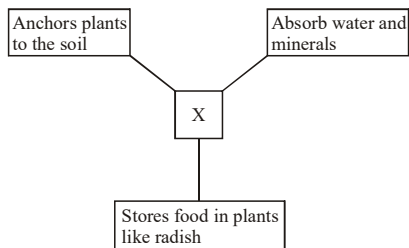
- |             |          |          |
|-------------|----------|----------|
| (i)         | (ii)     | (iii)    |
| A. Physical | Physical | Chemical |
| B. Chemical | Chemical | Physical |
| C. Chemical | Physical | Physical |
| D. Physical | Chemical | Chemical |

23. What type of roots are present in the plant shown below ?



- |                  |                        |
|------------------|------------------------|
| A. Lateral roots | B. Tap roots           |
| C. Fibrous roots | D. Transpiratory roots |

24. The above figure depicts characteristics of X. Choose the correct statement about X from the following :



- A. X are fibrous in mango.  
 B. X conducts water in the plants.  
 C. X is the first part that emerges during germination.  
 D. X bears nodes and internodes.
25. Which of the following is incorrect regarding skeletal support system of different organisms ?
- A. Earthworms have liquid skeleton where liquid filled spaces inside the body serve a support system  
 B. Skeletal muscles work in pairs  
 C. Snakes have bristles on the under surface of the body to support movement.  
 D. Birds have hollow bones with air filled cavities.

### SECTION 3 (Maximum Marks: 15)

- This section contains Q.26 to Q. 30.
- Each question has **FOUR** options 'A', 'B', 'C' and 'D'. **ONLY ONE** of these four options is correct
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26. Match the column :

#### Column 'A'

- (i) Rectilinear propagation  
 (ii) Virtual image  
 (iii) Pinhole camera  
 (iv) Refraction of light

#### Column 'B'

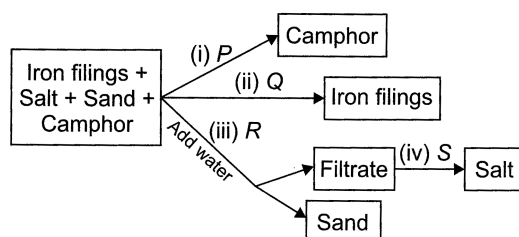
- A. Glass  
 B. Travel in straight line  
 C. Real image  
 D. Plane mirror
- B. (i) – D., (ii) – C., (iii) – B., (iv) – A.  
 D. (i) – B., (ii) – A., (iii) – C., (iv) – D.

- A. (i) – A., (ii) – B., (iii) – C., (iv) – D.  
 C. (i) – B., (ii) – D., (iii) – C., (iv) – A.

27. Match the column :

Column 'A'	Column 'B'
(i) Gravitational force	A. Contact force
(ii) Force	B. Force per unit area
(iii) Muscular force	C. Non contact force
(iv) Pressure	D. A push or a pull
A. (i) – A., (ii) – B., (iii) – C., (iv) – D.	B. (i) – D., (ii) – C., (iii) – B., (iv) – A.
C. (i) – B., (ii) – D., (iii) – C., (iv) – A.	D. (i) – C., (ii) – D., (iii) – A., (iv) – B.

28. Study the given flow chart and identify the processes P, Q, R and S carried out in the given sequence for separation of the mixture.



P	Q	R	S
A. Sublimation	Magnetic separation	Filtration	Evaporation
B. Magnetic separation	Filtration	Sublimation	Evaporation
C. Evaporation	Magnetic separation	Filtration	Sublimation
D. Sublimation	Magnetic separation	Evaporation	Filtration

29. Match column I with column II and select the correct option from the given codes.

Column I	Column II
P. Digestion of food in our body	(i) Fast changes
Q. Earthquake	(ii) Natural, desirable change
R. Falling of stone	(iii) Natural, undesirable change
S. Change of seasons	(iv) Slow change
A. P-(iv), Q-(ii), R-(iii), S-(i)	B. P-(iii), Q-(iv), R-(ii), S-(i)
C. P-(ii), Q-(i), R-(iv), S-(iii)	D. P-(iv), Q-(iii), R-(i), S-(ii)

30. Match the following joints with their positions in the human body and select the correct option based on that.

1. Ball and socket joint	a. Wrist joint
2. Pivot joint	b. Knee joint
3. Hinge joint	c. Joint between the skull and the vertebral column
4. Gliding joint	d. Rounded end of one bone fits into the cavity of another bone.

A. 1 – d, 2 – c, 3 – b, 4 – a	B. 1 – a, 2 – b, 3 – c, 4 – d
C. 1 – d, 2 – b, 3 – c, 4 – a	D. 1 – b, 2 – d, 3 – a, 4 – c

**Space for rough work**

**Space for rough work**