



# MACRO VISION ACADEMY, BURHANPUR

## Entrance Sample Paper (2019-20)

Class: X

Time: 2:00 Hrs.

M.M.: 100

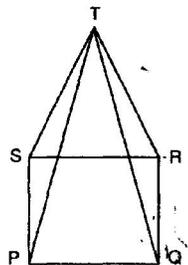
### Mathematics (40)

1. If  $2\sqrt{x} + \sqrt{5x - 4\sqrt{x}} = 1$ , then find the value of  $x$ . 2
2. 1000 families with 2 children were selected randomly and the following data were recorded: 2  

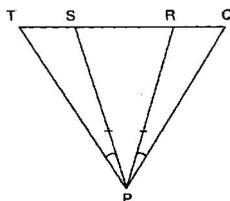
Number of boys in a family:	0	1	2
Number of families:	140	560	300

If a family is chosen at random find the probability that it has

  - I. at least one boy
  - II. at most one boy .
3. The mean of 14 values of a data is 23. If one more value is introduced in the data, the mean of 15 values becomes 25. Find the 15<sup>th</sup> value. 2
4. Show that the diagonals of a parallelogram divide it into four triangles of equal area. 2
5. If  $2x + 3y = 13$  and  $xy = 6$ , find the value of  $8x^3 + 27y^3$  3
6. Two cones have their heights in the ratio of 1:3 and the radii of their bases in the ratio 3:1. Find the ratio of their volumes 3
7. If  $f(x) = x^4 - 2x^3 + 3x^2 - ax - b$  when divided by  $x - 1$ , the remainder is 6, then find the value of  $a + b$  3
8. In the given figure, PQRS is a square and SRT is an equilateral triangle. Prove that 3  
  - I.  $PT = QT$
  - II.  $\angle TQR = 15^\circ$



9. Prove that the sum of either pair of opposite angles of a cyclic quadrilateral is  $180^\circ$ . 4
10. Find the percentage increase in the area of a triangle if its each side is doubled. 4
11. In the given figure,  $PS = PR$ ,  $\angle TPS = \angle QPR$ , prove that  $PT = PQ$ . 4



12. ABCD is a rhombus, EABF is a straight line such that  $EA = AB = BF$ . Prove that ED and FC when produced meet at right angles. 4
13. Prove that the quadrilateral formed by the internal angle bisectors of any quadrilateral is cyclic. 4

**(Science 30)**

**Physics (10)**

14. What do you understand by law of conservation of momentum? Prove its formula. 2
15. Give two advantages and disadvantages of Echo of sound. 2
16. An object having mass of 10 kg. Accelerated from 4 m/s to 6 m/s within 5 second. Then find force applied. 3
17. Write the difference between Gravitational constant (G) and Acceleration due to gravity (g)? 3

**Chemistry (10)**

18. Write electronic configuration and find out the element if there atomic number is 2  
I. 15 II. 21
19. I. Calculate number of molecule present in two moles of oxygen gas. 2  
II. Write difference between molecular mass and formula mass.
20. I. Define colloidal solution with example 3  
II. What is sublimation? Explain with example.  
III. Convert 40°C into Kelvin and 373 K into degree centigrate.
21. I. Define vaporization? 3  
II. Why we preferred to wear white clothes in summer season.  
III. Give valancy of Ca and Mg in the following compounds.



**Biology (10)**

22. Which group, Pisces or Amphibian is more advanced? Give two reasons. 2
23. Draw unstraited and striated muscle tissue and distinguish it on the basis of shape, function and location? 2
24. Write two function each of golgibodies, endoplasmic reticulum and nucleus. 3
25. Highlight the ways through which infectious diseases generally spread in human communities. 3

**(Social Science 10)**

26. Who were the radicals? 2
27. Explain the four factors of production. 2
28. Explain the four regions of the Northern Plain 2
29. What do you understand by the term General-election? 2
30. Why human resources is considered the best resources? 2

**(English 20)**

**31. Read the following passage carefully:**

Money is indispensable to make life's machine run smoothly. People who lack money are often deprived of even the basic necessities of life. But it must also be clearly understood that though important, money cannot be the-all and end-all of life. There are several things, like peace of mind, happiness and love, which are extremely important in our life but which cannot be bought with money.

A man inherited a palatial bungalow, a big fleet of luxury cars and a thriving business. He believed he was placed in such a situation where he could command anything in life. Hundreds of people flocked to him everyday and fleeced him of some money. Since his "safes" were overflowing with money, the loss of a little did not pinch him. And, unfortunately, he remained blind to the real motive of those people's friendship and prided himself on his large following.

One day, bored with the inactive life he was leading, he invited some friends to his house, All of them pretended to be busy. They said they could not come because they had a previous engagement. Next day, he renewed the invitation but none of them responded positively. Feeling desperate, he took his chauffeur to a big five-star hotel and spent over ten thousand rupees in a futile bid to 'buy' happiness. He returned home in the evening, utterly disgusted with life. It was then that he realised that one could not buy everything with money.

Answer the following questions briefly:

- (i) How do people who are not "well-off" suffer in life? 1
- (ii) What are the things that money cannot buy? 1
- (iii) What kind of life was the man in the story leading? 1
- (iv) What was the man confident about? 1
- (v) Why didn't the loss of little money pinch the man? 1
- (vi) Why, in your view, did his friends decline his invitation? 1

**32. Read the conversation between Rama and Sita. Then report the paragraph that follows** 4

**Rama** : I am going to jungle.  
**Sita** : Why?  
**Rama** : I have been banished for fourteen years by father.  
**Sita** : Oh! It is very sad. Can I come with you?  
**Rama** : No. Stay at home take care of my old parents.

On being banished by his father, King Dasharath, Rama told Sita (a) \_\_\_\_\_.  
 She asked him (b) \_\_\_\_\_. Rama told that (c) \_\_\_\_\_.  
 Sita exclaimed saying it was very bad and asked Rama (d) \_\_\_\_\_.  
 Rama asked her to stay at home to take care of his old parents.

**33. Fill in the blanks with appropriate prepositions from options given below.** 2

**Success (i) \_\_\_\_\_ life depends (ii) \_\_\_\_\_ good health. We can keep our bodies fit (iii) \_\_\_\_\_ keeping ourselves clean. We should not cultivate the bad habit (iv) \_\_\_\_\_ smoking, drinking, etc.**

- (i) (a) of (b) off (c) into (d) in
- (ii) (a) about (b) on (c) onto (d) upto
- (iii) (a) for (b) from (c) by (d) through
- (iv) (a) of (b) against (c) off (d) with

**34. Rearrange the following words and phrases to form meaningful sentences.** 2

- (a) every/found/spiders/are/continent/on/almost
- (b) very/helpful/they are/eat/they/because/flies/other/and/insects

**35. In today's age of stress and anxiety, the children need to understand the importance of sleep, meditation and yoga over social networking and the use of the cell phone. Write an article on 'Concentration and Composure', the need of the hour.** 3

**36. On the occasion of World Literacy Day, write an article for the school news-letter on the topic, 'Importance of Education in Our Life'.** 3

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