JB Academy
Annual Examination (2019-20)
Class VII (Mathematics)

Name. $\qquad$ Sec./Roll No. $\qquad$
Time: 3 Hours

## Mental Maths. (10 marks)

1. Multiple choice questions:
(A) The number of medians in a triangle is:
(a) 1
(b) 2
(c) 3
(d) 4
(B) $\left(\frac{5}{6}\right)^{0}=$ ?
(a) $\frac{6}{5}$
(b) 0
(c) 1
(d) none.
(C) $8 \%$ of a number is 6 . What is that number?
(a) 48
(b) 96
(c) 75
(d) 60
(D) If the ratio of the radius of two circles is $2: 3$ then the ratio of their circumference is......
(a) $2: 3$
(b) $3: 2$
(c) $4: 9$
(d) $9: 4$
(E) A figure that do not have any rotational symmetry is...
(a) Circle
(b) Parallelogram
(c) Kite
(d) Regular pentagon
2. Fill in the blanks:
(i) $\left(\frac{-3}{8}\right) \div(\ldots \ldots)=\frac{5}{12}$
(ii) the value of the expression $5 x^{2}+1$ when $x=-2$ is.........
(ii) In -5ab, the coefficient of $a$ is $\qquad$
(iv) In the expression $3^{7}$ base $=$ $\qquad$ and exponent $=$ $\qquad$
(v) Profit or Loss is always reckoned on $\qquad$

## Calculation Based :

3. Find the value of $x$ in each of the following:

4. Find the value of $y$ in the following:
(2)

5. Solve the following equations:
(3)
(a) $8 \mathrm{x}-3=9-2 \mathrm{x}$
(b) $\frac{2}{3} x=\frac{3}{8} x+\frac{7}{12}$
(c) $2(x-2)+3(4 x-1)=0$
6. Find the area of the shaded region in the following figure:
7. Find the area of right angled triangle with base 12 m and hypotenuse 37 m.
(2)
8. Find the circumference of the circle whose diameter is 35 cm .
(2)
9. Divide Rs 1100 among $A, B, C$ in the ratio $2: 3: 5$.
10. What percent is:
(a) Rs 15 of Rs120?
(b) 36 minutes of 2 hours?
11. Find $C P$ when $S P=$ Rs 8510 and loss rate is $8 \%$.
12. Subtract $x^{2}-y^{2}$ from $2 x^{2}-3 y^{2}+6 x y$.
(2)
13. If $p=(-10)$ find the value of $p^{3}-3 p-10$.
14. Write the prime factorization of the following numbers in the exponential form:
(a) 540
(b) 648
15. Simplify the following and give your answer in Rational Numbers.
(a) $5^{2} \times 3^{3}$
(b) $3^{2} \times 10^{4}$
16. List five Rational numbers between:
(a) $\frac{-4}{5}, \frac{-2}{3}$
(b) -1 and 0 .
17. Simplify the following:
(a) $\frac{-7}{10}+\frac{13}{-15}+\frac{27}{20}$
(b) $\frac{-7}{30} \times \frac{5}{14}$

## Application Based:

18. In the given figure $M$ is any point on the side $Q R$ of triangle $P Q R$. Show that: $P Q+Q R+R P>2 M P$.
19. Swati is 3 years younger than her brother Anuj. If the sum of their ages is 33 years. Find their ages.
20. The diameter of a circular park is 84 m . A 7 m wide rode runs on the outside around it. Find the cost of construction of the road at the rate of Rs 200/m².
21. A rectangular lawn $20 \mathrm{~m} \times 50 \mathrm{~m}$ has two roads each 5 m wide running through its middle. One parallel to its length and other is parallel to its width. Find the cost of constructing the roads at Rs $120 / \mathrm{m}^{2}$.
22. Arjun and Ramesh borrowed Rs 6000 each at the rate of $12 \%$ p.a. for a period of 2 years and 3 years respectively. Find the Simple Interest paid by each of them.
23. Anil bought an Almirah for Rs. 13600 and spent Rs 400 on its transportation. He sold it for Rs 16800. Find his gain percent.
(2)
24. Subtract the sum of $\left(8 m-7 n+6 p^{2}\right)$ and $\left(3 m-4 n+p^{2}\right)$ from the sum of $\left(2 m+4 n-3 p^{2}\right)$ and $\left(m-n-p^{2}\right)$.
(3)
25. Simplify the following using laws of exponent.
(a) $\frac{3^{5} \times 10^{5} \times 25}{3^{7} \times 6^{5}}$
$\frac{\text { (b) } 11^{3} \times 5^{3}}{121 \times 5}$
26. Find the order of rotational symmetry of the following figures.
(a) Order $=\ldots \ldots \ldots \ldots$.
(b) Order =
(c) Order =
(d) Order =
.....................
27. Fill in the blanks:-

| 3 D shapes | No of Faces | No of Edges | No of <br> Vertices | Net |
| :--- | :--- | :--- | :--- | :--- |
| Cylinder |  |  |  |  |
| Cone |  |  |  |  |
| Triangular <br> Prism |  |  |  |  |
| Cube |  |  |  |  |

## Activity Based:

(10 marks)
29. Construct the following with compass only and also write the steps of construction.
(a) Draw a line parallel to the line m at a distance of 4.5 cm .
(3) Construction:-


Steps of construction:-
(b) Construct a triangle PQR wit $\mathrm{PQ}=3.5 \mathrm{~cm}, \mathrm{QR}=4.2 \mathrm{~cm}$, and angle $\mathrm{Q}=120^{\circ}$.

Construction:-
(c) Construct a triangle $X Y Z$ with $Y Z=6 \mathrm{~cm}$, angle $Y=60^{\circ}$ and angle $Z=120^{\circ}$.

## Construction:-

Steps of construction:-
30. count the number of cubes in the following figure.
(1)


No of cubes = ................

