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Devi Balika Vidyalaya - Colombo

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First Term Test - 2012

Mathematics - Part I

Grade 11

2 hours

Name :

Index No. :

* Answer all the questions in the given paper itself.

01) If $3.8 \times 62 = 235.6$, find the value of 0.38×6.2

02) Arrange in descending order.

$$\frac{3}{5}, \frac{3}{11}, \frac{3}{7}$$

03) Simplify and find the value of

$$(3\sqrt{27})^2$$

04) The marked price and selling price of a shirt are Rs. 500 and Rs. 550 respectively. Calculate the percentage of profit of the shirt.

05) Convert $\frac{5}{6}$ into decimal form and write it in words.

06) Simplify. $\frac{5}{6} - \frac{1}{2} \times \frac{1}{3}$

07) If $a = 1$, $b = (-6)$ and $c = 1/3$ evaluate, $(a + \frac{b}{2} - 3c)$

08) Underline irrational numbers.

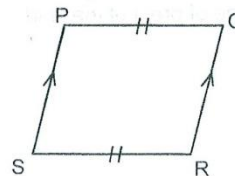
π , 0 , $\frac{22}{7}$, $\sqrt{24}$, $\sqrt{25}$, $3.125125...$

09) Find the L.C.M. of a^2 , $a^2 - a$, $a^3 - a$

10) Rationalized the denominator of $\frac{2\sqrt{3}}{\sqrt{2}}$

11) Simplify $\frac{zx^2 - y^2z}{(x+y)} \times \frac{x}{2z}$

12) Is the quadrilateral PQRS parallelogram ?
or not ? Mention the reason.

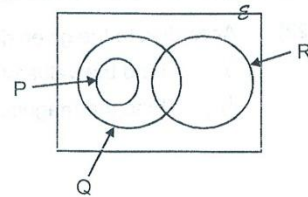


13) If $\log_a 2 = x$ and $\log_a 3 = y$ evaluate,
 $\log_a \frac{8}{9}$

14) Find the Value of $\sqrt[3]{8x^3} \times 25^{-1/2}$

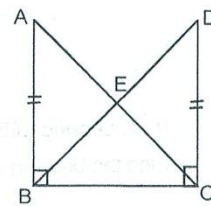
15) i) Write the relationship of sets Q and P in set notation.

ii) Write two disjoint sets.



16) The length of the side of a cube is 97 cm. Write the value of it as a subtraction or an addition of two values, then find the volume of it.

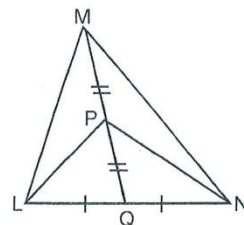
17) Write two congruent triangles. Write the case of congruency of it.



18) Make the subject as T of $I = \frac{T-P}{K-I}$

19) The value of a sphere where radius is $\frac{4}{3} \pi r^3$. Find the volume of another sphere where diameter is d.

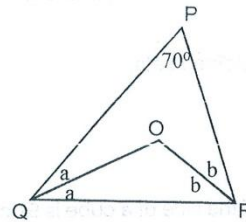
20) The mid points of sides LN and MQ are Q and P respectively. If the area of the triangle is 80cm^2 , Find the area of the triangle LPM.



21) The length of a side of the base of a square based pyramid is 12cm. The length of other edges 10 cm each. Find the perpendicular height of a triangular face of it.

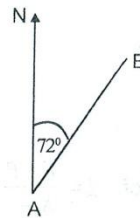
22) According to the given data.

- i) Find the value of $a + b$
- ii) Find the magnitude of \hat{QOR} .



23) The surface area of a hemisphere is 462cm^2 . Find its radius. (Consider the surface area of a hemisphere where radius as $3\pi r^2$)

- 24) If the bearing of B from A is 072° ,
Find the bearing of A from B.



25) The given figure shows a sphere radius 10 cm and its circumscribed cylinder. Express ratio between radius and height of circumscribed cylinder in simplest form.



Mathematics - Part II

* Answer all the questions. Each question carries 10 marks.

* The volume of a solid right circular cone of base radius r and height h is $\frac{1}{3} \pi r^2 h$

(01) a) Fill in the blanks using the symbols \subset and \varsubsetneq

i) $N \dots\dots\dots Z$ ii) $Q \dots\dots\dots R$

b) Simplify.

i) $\sqrt{48} \div 5\sqrt{3}$

ii) $4\sqrt{3} + \sqrt{50} + 3\sqrt{5} - \sqrt{12}$

c) Simplify.

$$\frac{y^2}{y^3 - 1} + \frac{2}{y - 1} - \frac{3y}{y^2 + y + 1}$$

(02) a) Solve $\log_a 8 = \log_a 2 + \log_a (y - 3)$

b) If $a - \frac{1}{a} = \frac{3}{2}$ evaluate $a^3 - \frac{1}{a^3}$

c) Expand

i) $(1 - 2x)^3$

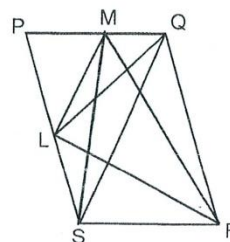
ii) $(a + \frac{1}{2}b)^3$

(03) a) Solve. $8^{(x+1)} \times 2^{(x-1)} - 1 = 63$

b) Find the value of K using logarithms table.

$$K = \frac{\sqrt{0.0732} \times (24.32)^2}{10 \times 0.0532}$$

(04) PQRS is a Parallelogram. LM is drawn Parallel to the diagonal QS.



i. Copy down the diagram and mark the given data on it.

ii. Name a triangle equal in area to triangle MQR. State the reason.

iii. Name a triangle equal in area to triangle LRS. State the reason.

iv) Prove that the area of MQR = area of LSR.

(05) The capacity of water in a conical shaped vessel is 23.1 / while perpendicular height of it, is 50 cm.

i. Express the volume of water of it in cubic metres

ii. Find the radius of the base of this vessel in centimetres.

iii. How many cylindrical tins of radius 7cm and height 5cm can be filled with water in the above vessel

iv. Find the area of curved surface of the above tin.