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**Mathematics**

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**Two hours**

**09 fY%aKsh – úfYaI we.hsu ^m<uq jdrh& - 2022**

**தரம் 09 - விசேட மீளாய்வு (Kjyhk; jtiz) - 2022**

***Grade 09 – Special Evaluation (First Term) - 2022***

Ydka; mS;r úÿy, - fld<U 04

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***St. Peter's College - Colombo 04***



**Part – I**

**Answer all questions.**

01. Simplify. 0. 0002 1.6

02. Solve 6 + 5

03. Find the value of *x.*

57o

*x*

04. Expand.

**3 *x*** (2y - 5)

05. A student receives 30 marks out of a 40 mark question paper. Find the fraction of marks received by the student out of the total marks.

06. Solve 5 (*x* + 1) – 3*x* - 8

7.5 l

07. How many times should the container with a capacity of 50 ml be used to fill up a 7.5 l capacity container?

50 ml

*a*

2*a*

08. Find the value of angle *a*.

09. Find the square root of using prime factors.

10. If the capacity of the following container is 4l , what is it’s height?

100 cm

80 cm

h

11. Expand and find the value of (- 2)5

12. What is the mode of the set of numbers, 8, 2, 7, 2, 3, 6, 7, 2, 4

13. Round off 17 to tens place.

14. Express 25ten  as a binary number.

15. Samantha gives of 15,000 he has, to his brother. What is the amount of money Samantha has in his hands now?

16. -9, -7, -5, -3 , \_\_\_\_ , \_\_\_\_ write the next two terms of the number pattern.

17. Simplify.

18. Express 8 . 7 m3  in cubic centimeters (cm3).

*x*

2*x*

19. Find the value of *x*

20. Find the factors of 5 – 5*x*y

**Part – II**

* **The first question is compulsory. Answer the first question and 04 more questions.**

01. a.

i. Draw the 4th pattern of the above pattern. ***(02)***

ii. Using this, write the first 4 terms of the above number pattern. ***(02)***

iii. What is the difference between two subsequent terms of this number pattern? ***(01)***

b. Given below are incomplete details in a number pattern.

6 , 10 , 14 , 18 \_\_\_\_\_\_\_\_\_\_\_

1st term 6 = 4 1 + \_\_\_\_\_\_

2nd term 10 = 4 \_\_\_\_\_\_ + 2

3rd term 14 = \_\_\_\_\_\_ \_\_\_\_\_\_ + \_\_\_\_\_\_

i. Fill the above blanks. ***(05)***

ii. Find the general term of this number pattern. ***(02)***

c. The general term of a certain number pattern is Tn = 3n – 2

i. Which term gives 112? ***(02)***

ii. Find the value of the (n + 1) term. ***(02)***

02. a. Simplify.

i. 1 ***(02)***

ii. 1 + ***(03)***

b. of 15,000 rambutan was sold. of it was spoilt and the rest were unripe.

i. How many rambutan were sold? ***(01)***

ii. How many rambutan were spoilt? ***(01)***

iii. How many rambutan were unripe? ***(02)***

iv. If 1 rambutan was sold for Rs. 2/-, how much was earned by selling rambutan? ***(02)***

03. a' Find the values of the following algebraic expressions if,

a = -2 b = 3 c = -3

i. 2 b – 3 + c ***(01)***

ii. + 10 ***(02)***

b. Factorize

***(02)***

c. i. Express the perimeter of the square as an algebraic expression. ***(01)***

*x*

ii. A rectangle’s length is 2 units more than the side length of the above square and the width is 1 unit less than the side length of the above square. Express the length and width of the rectangle as algebraic expressions. ***(01)***

iii. What is the area of the rectangle? ***(02)***

iv. If *x* = 3 , find the value of the rectangle’s area. ***(02)***

04. a'

1. Express 35ten  as a binary number. ***(02)***

ii. Express 1 0 1 0 1 1two as a decimal number. (to the base ten) ***(02)***

iii. Solve.

1 0 1 0 1two

1 1 1 1 two

+ 1 0 1 two ***(02)***

iv. Find the value 1 0 0 0 1two - 1 1 1 1two ***(02)***

*x*

*x*

y

70o

*a*

*a*

v. Find the value of *a*, *x* and y.

***(03)***

05. a. The length, width and height of a diesel tank is 1.6 m , 1 m and 80 cm respectively.

i. What is the volume of the tank in cm3 ***(02)***

ii. What is the capacity of the tank in liters? ***(02)***

iii. If a motor vehicle requires 40l of diesel per day, for how many days of consumption is there fuel for the use of 8 such motor vehicles? ***(03)***

b. The volume of milk collected in a day is 0.5 m3 in a dairy farm.

i. What is the per day volume in liters? ***(02)***

ii. How many bottles with a capacity of 250 ml each can be filled daily? ***(02)***

06. a. A businessman buys a mobile phone for Rs. 90,000/- and marks the price to sell it, keeping a profit of Rs. 45,000/-

i. What is the mobile phone’s marked price? ***(01)***

ii. However if a 10% discount is offered from the marked price, how much would the mobile phone be sold for? ***(03)***

iii. Upon selling by offering the 10% discount what is the profit gained by the businessman? ***(02)***

iv. What is the profit percentage earned by the businessman? ***(03)***

b. If a sofa with a value of Rs. 160,000/- is sold 5% less than the value, what is it’s selling price? ***(02)***

07. a. In the diagram, PR = QS

T

S

Q

P

R

i. Show that PT = RS ***(03)***

ii. If PS = 145o and PQ = 55o find the magnitude of QR. ***(02)***

120o

C

B

E

D

A

o

y

b. i. By giving reasons find the magnitude of y?

(AB, CD, OE are straight line segments.) ***(02)***

O

N

L

K

30o

M

c. i. Show that the magnitude of KN is 5 times the magnitude of NM. ***(02)***

ii. Write an angle with equal magnitude to KN and state the magnitude. ***(02)***