Time : 3 Hours

MATHEMATICS (E)
(For Children with Special Needs)

Subject Code

S	0	2	5

Total No. of Questions : 7   **(Printed Pages : 7)**   **Maximum Marks : 65**

INSTRUCTIONS : *i) Answer **each** main question on a **new** page.*
   *ii) **All** questions are **compulsory**.*
   *iii) The question paper consists of **seven** questions.*
   *iv) There is no overall choice. However, **internal** choice have been provided in **two** questions of **three** marks **each**.*
   *v) In question on constructions, the drawing should be **neat** and exactly as per the given measurement. The construction lines and arcs should also be maintained.*
   *vi) Chart of tables from **2** to **9** will be supplied on request.*
   *vii) Use of calculator and mathematical tables is not **permitted**.*
   *viii) The numbers on the **right** side indicate marks.*

1. A) Select and write the most appropriate alternative from those provided in the bracket :   **[1]**

   If x – y = 3 and x + y = 7, then the value of x = _____.

   [2 ; 3 ; 4 ; 5]

   B) The following is a given pair of linear equation   **[2]**

   x + 3y = 5

   2x + 6y = 11

   Answer the following questions :

   i) Write the condition for no solution of the given pair of linear equation.

   ii) Verify whether the equations have no solution.

C) By elimination method, find the solution of **any one** of the following equations. **[3]**
    i) $3x + y = 7$
       $5x - y = 9$
    ii) $3x + y = 8$
        $x - 2y = 5$

D) Attempt **any one** of the following : **[4]**
    i) The cost of 1 pencil and 3 erasers is together Rs. 14, while the cost of 2 pencils and 5 erasers is together Rs. 25. Find the cost of each pencil and eraser.
    ii) The sum of two odd numbers is 18 and their difference is 4. Find these two odd numbers.

2. A) Select and write the most appropriate alternative from those provided in the bracket : **[1]**
      In a quadratic polynomial $x^2 + 3x - 6$, the value of x is _____
      [1 ; 0 ; 3 ; 6]

   B) Attempt the following : **[2]**
      i) Find the sum of the zeroes of the polynomial $2x^2 + 11x - 21$.
      ii) Find the product of the zeroes of the polynomial $3x^2 + 17x + 10$.

   C) Divide $x^3 + 6x^2 + 11x + 6$ by $x + 1$ and find the quotient and the remainder. **[3]**

   D) A child has a die whose six faces show the letters as given below : **[3]**

      | A | E | O | U | I | A |

      The die is thrown once
      Find the probability of getting
      i) A
      ii) I
      iii) B

3. A) Select and write the most appropriate alternative from those provided in the bracket : **[1]**

   The value of $b^2 - 4ac$ in the quadratic equation $x^2 - 5x + 6$ is _____

   [1 ; 5 ; 10 ; 12]

   B) Attempt the following : **[2]**
   i) Find the roots of quadratic equation $x^2 - 25 = 0$.
   ii) Write the quadratic equation $x^2 - 15 = 2x$ in the form of $ax^2 + bx + c = 0$.

   C) Find the roots of **any one** of the following : **[3]**
   i) $x^2 + 10x + 24 = 0$ (By factorisation method).
   ii) $x^2 + 4x + 3 = 0$ (By quadratic formula method).

   D) The following frequency distribution table shows the daily expenses (in Rs.) of students : **[4]**

Daily expenses (in Rs.) C.I	No. of students f_i	Class mark x_i	$f_i x_i$
0 – 10	2		
10 – 20	8		
20 – 30	7		
30 – 40	6		
40 – 50	3		
50 – 60	4		
	$\Sigma f_i =$ _____		$\Sigma f_i x_i =$ _____

   Rewrite and complete the table and also find the mean of daily expenses.

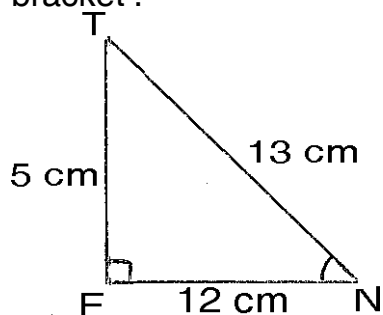4. A) Select and write the most appropriate alternative from those provided in the bracket : **[1]**

The decimal form of $\dfrac{4}{5}$ is _____

[0.2 ; 0.4 ; 0.5 ; 0.8]

B) The product of two numbers is 180. If their LCM is 60, then find the HCF of two numbers. **[2]**

C) Using Euclid's division method, find the HCF of 30 and 55. **[2]**

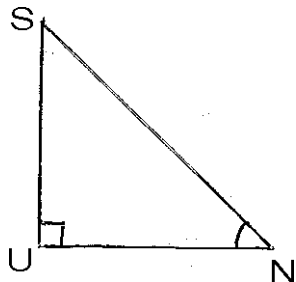D) Find the sum of the first 10 terms of the AP 4, 8, 12, 16 ... **[3]**

5. A) Select and write the most appropriate alternative from those provided in the bracket : **[1]**

In the above $\triangle$ TEN , $\underline{|E} = 90°$. If TE = 5 cm, EN = 12 cm and TN = 13 cm, Then cos N = _____

$\left[\dfrac{5}{13} ; \dfrac{12}{13} ; \dfrac{13}{12} ; \dfrac{12}{5} \right]$

B) In $\triangle$ SUN , $\underline{|U} = 90°$, If Tan N $= \dfrac{6}{8}$, then find **[2]**

i) The length of SN   ii) The value of sin N

C) Substitute the known numerical values of trigonometric ratio and find the value of **[3]**
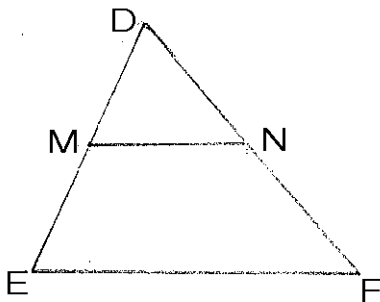
$4 \cos^2 45° + 2 \sin^2 30° + 5 \tan^2 45°$

D) Q(5, 7) and R(2, 3) are any two points. Find the distance between points Q and R. **[3]**

6. A) Select and write the most appropriate alternative from those provided in the bracket : **[1]**
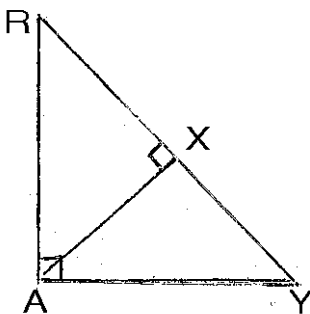
In $\triangle PQR \sim \triangle XYZ$, then $\dfrac{PQ}{\underline{\hspace{1cm}}} = \dfrac{QR}{YZ}$

[XY ; XZ ; PR ; YZ]

B) In $\triangle DEF$, MN || EF. If DM = 2 cm, ME = 3 cm, DN = 6 cm, find **[2]**

   i) The length of NF

   ii) The length of DF

C) In $\triangle RAY$, $\underline{|A} = 90°$, $AX \perp RY$. With reference to the figure, fill in the blanks and complete the proof. **[3]**

              P.T.O.

Statement	Reason
In △RAY and △RXA	
i) ⌊RAY = _____	Each is a right angle
ii) ⌊R = ⌊R	_____
iii) △RAY ~ △RXA	_____

D) In the following figure AC and AD are two tangents drawn from the point A outside the circle with centre 'O'. With reference to the figure answer the following questions : **[4]**
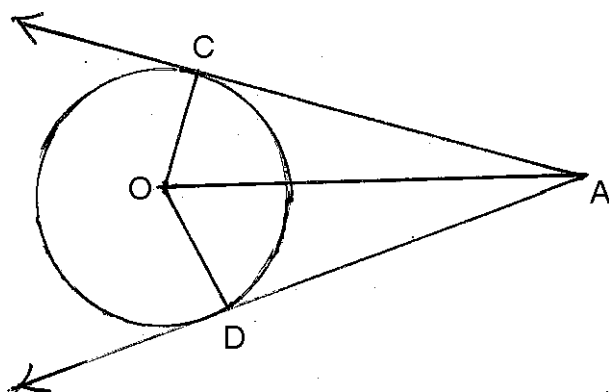
i) Name the side equal to OC.

ii) Name the common side of △AOC and △AOD.

iii) Name the right angles of △AOC and △AOD.

iv) By which criterion/theorem △AOC and △AOD are congruent ?

7. A) Select and write the most appropriate alternative from those provided in the bracket : **[1]**

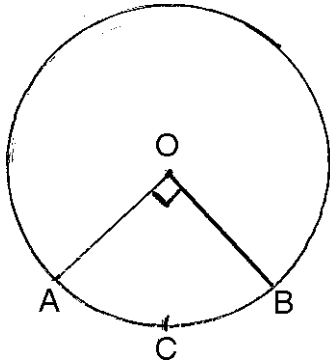If the radius of a circle is 6 cm, then its diameter is _____

[0 ; 10 ; 12 ; 15]

B) In the adjoining figure, O is the centre of the circle. O – A C B is a sector. **[2]**

$\angle AOB = 90°$ and radius OA = 8 cm.

(Do not substitute the value of π)

Find :
 i) Area of sector O-ACB
 ii) The length of arc ACB

C) Draw a line segment GH = 8.5 cm and divide it into 5 equal parts. (Use compass and ruler only) **[3]**

D) Draw a line segment OZ = 7 cm and taking O as a centre and radius 3 cm draw a circle. Then using a pair of compasses and ruler construct two tangents from point Z to the circle. Measure and state the length of a tangent segment. **[3]**

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