# SUMMATIVE ASSESSMENT - II - 2016 - 2017
## MATHEMATICS
### (English Medium)

**Class : VIII**                                    **(Max. Marks : 80)**

## PART - A
### SECTION - I                                    **4 x 2 = 8**

1.   It is true                                                                    (½m)

   For writing,   There are '2n' non-square numbers between $n^2$ and $(n+1)^2$       (½m)

   For writing,   There are 2x7= 14 non-square numbers between $7^2$ and $8^2 (7+1)^2$

   For writing,   There are 2x8 =16 non-square numbers between $8^2$ and $9^2$ $(8+1)^2$ (½m)

   Hence there are 30 non-square numbers between $7^2$ and $9^2$       (½m)

2.   Given that $2^{-3} = \dfrac{1}{2^x} \Rightarrow 2^{-3} = 2^{-x} \left( \therefore \dfrac{1}{a^m} = a^{-m} \right)$       (1m)

   $\therefore x = 3$                                                                    (1m)

3.   For writing,  Mean $\overline{x} = A + \dfrac{\sum (x_i - A)}{N}$       (1m)

   $A$ = Estimated mean
   $x_i$ = $i^{th}$ observation
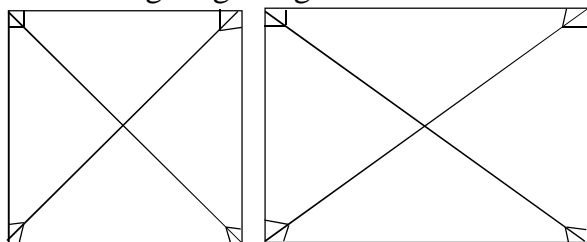   $N$ = Number of observations       (1m)

4.   For writing any two congruent objects in daily life
   For example, i) one rupee coins released in the same year by RBI       (1m)
   ii) Blades of a ceiling fan       (1m)

### SECTION - II                                    **5x4 = 20**

5.   Given that $\dfrac{6x-7}{3x+2} = \dfrac{5}{8}$

   for writing,    9(6x-7) = 5(3x+2)       (1m)
   48x-56 = 15x+10       (1m)
   33x = 66       (1m)
   for simpligying, x = 2       (1m)
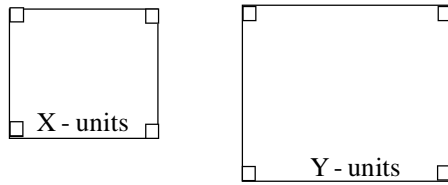
6.   For writing
   If diagonals of a parallelogram are equal
   then the angles should be $90^0$ between any two adjacent sides       (1m)
   We know that in Rectangle and square have $90^0$ of angle between adjacent sides (1m)
   For drawing rough diagrams

7. For writing

        8 pumps fill a tank in 1hr.30min = 90min

    Let    6 pumps can fill the same tank in 'x' min        (½m)

    For writing    Ratio of pumps = 8:6

            Ratio of time = 90:x        (1m)

    For writing    Ratio of pumps is inversely proportion to time    (½m)

    for writing    $\therefore$ 8:6 = x:90    (½m)

    For simplifying    6x = 8x90

$$X = \frac{8 \times 90}{6} = 120 \qquad (½m)$$

    For writing,    $\therefore$ 6 pumps can fill the tank in 120 min.    (½m)

8. For drawing two squares of different sides    (½m)



    For proving they are similar (sides rations equal)    (½m)

    To find perimeters (4x & 4y)    (½m)

    for writing observation (perimeters ratio is same as ratio of sides)    (½m)

    For finding areas    (½m)

    To find the ratio of areas ($x^2:y^2$)    (½m)

    For writing observation    (½m)

    (Areas ratio is same as ratio of squares of sides)

9. For writing

    We know that class marks are mid values of class intervals this means calss boundaries lie between every two successive class marks.

    The difference between two successive class marks = h = 23-11=12, lower boundary

    $= x - \dfrac{h}{2}$, upper boundary $= x + \dfrac{h}{2}$    (1m)

| Class Mark | | Exclusive Classes | Frequency | Less than cumulative frequency | Greater than cumulative frequency |
|---|---|---|---|---|---|
| 11 | $\left(11-\frac{12}{2}\right)-\left(11+\frac{12}{2}\right)$ | 5-7 | 6 | 6 | 70 |
| 23 | $\left(23-\frac{12}{2}\right)-\left(23+\frac{12}{2}\right)$ | 17-29 | 11 | 17 | 64 |
| 35 | (35-6) - (35+6) | 29-4 | 15 | 32 | 53 |
| 47 | (47-6)-(47+6) | 41-53 | 22 | 54 | 38 |
| 59 | (59-6) - (59+6) | 53-65 | 9 | 63 | 16 |
| 71 | (71-6) - )71+6) | 65-77 | 7 | 70 | 7   (3m) |
| For writing exclusive classes | | | | | |
| For writing less than cumulative frequency | | | | | |
| For writing greater than cumulative frequency | | | | | |

**10-A** By using information, for drawing diagram    (2m)

From the diagram

$\triangle APQ$, $\triangle CRS$ are right angles triangles

AQRC and PLTS are trapeziums

For calculating

AC = PC - PA = 110-30 = 80m

CS = PS - PC = 200 - 110 = 90m

DS = PS-PD = 200-160 = 40m

BD = PD - PB = 160 - 70 = 90m    (1m)

For finding

Area of $\triangle APQ = \dfrac{1}{2} \times AQ \times AP$

$= \dfrac{1}{2} \times 40 \times 30 = 600\,sq.m$    (1m)

For finding

Area of trapezium $\triangle QRc = \dfrac{1}{2} \times AC(AQ + CR)$

$= \dfrac{1}{2} \times 80(40 + 60)$

$= 4000\text{sq.m}$    (1m)

For finding

Area of $\triangle CRS = \dfrac{1}{2} \times CR \times CS$

$= \dfrac{1}{2} \times 60 \times 90 = 2700\,sq.m$    (1m)

For finding,

Area of trapezium $PLTS = \dfrac{1}{2} \times LB(TL + SP)$

$= \dfrac{1}{2} \times 25(90 + 200) \quad (\because TL = BD)$

$= 3625\text{sq.m}$    (1m)

For finding

Area of the field = 600+4000+2700+3625
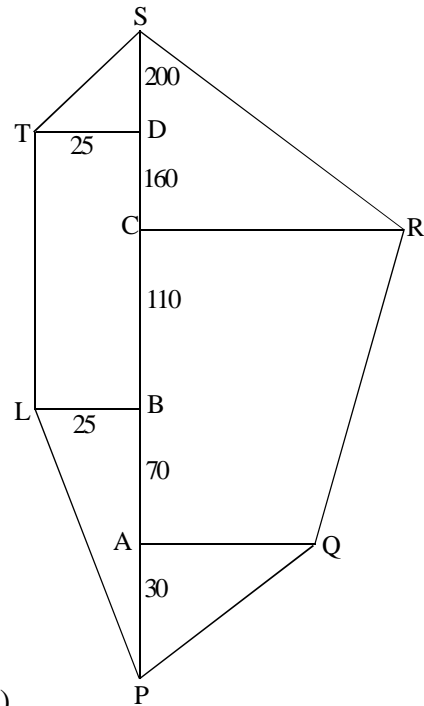
          = 10,925sq.m    (1m)

**10-B** Given that side of the square = 55cm

For finding, Length of the wire = Perimeter of the square    (1m)

= 4 x side

= 4x55 = 220cm    (1m)

For writing, now again the wire is bent into the form of a circle

$\therefore$ Length of the wire = circumference of the circle    (2m)

For finding ,

$\therefore 2\pi\pi = 220$

$2 \times \dfrac{22}{7} \times r = 220$ (1m)

$r = 35\text{cm}$

For finding, Area of the circle

$$\pi r^2$$

$$\dfrac{22}{7} \times 35 \times 35$$

$$= 3850 \text{sq.cm}$$

11-A For writing
(i) True
  Reason: The shape, sides and angles do not change by rotation (1m)
For writing
(ii) False
  Reason: Any two circles are always similar irrespetive of their radii (1m)
For writing
(iii) FALSE
  Reason: Reason: One measurement is required to say the congruency property (1m)
For writing
(iv) FALSE
  Reason: All equilateral triangles are similar (1m)

11-B For taking a pythagorean triplet
[ for example : (6,8,10) or (3,4,5) or (8,15,17) (1m)
For writing
Three multiples of the pythagorean triplet (3m)
For checking
these three multiples of the triplet form (3m)
Pythagorean triplets
[ by using pythagoras theorean, (hypotenuse)$^2$ = (side)$^2$ + (side)$^2$ ]
For writing
Multiples of a pythagorean triplex are also pythagoren triples (1m)

12-A Given that
Principal P = `.10,000

Rate of Interest R = $8\dfrac{1}{2}\% = \dfrac{17}{2}\%$

Time = 1 year 3 months

$= ( 1 \text{ year} + \dfrac{3}{12} \text{ year} )$

$= 1\dfrac{1}{4} \text{ year}$

For writing

Amount $A = P\left(1 + \dfrac{R}{100}\right)^{n}$ (1m)

For finding $\quad = 10{,}000\left(1+\dfrac{\frac{17}{2}}{100}\right)^{1\frac{1}{4}}$

$$= \left[10{,}000\left(1+\dfrac{\frac{17}{2}}{100}\right)^{1}\right]\left[1+\dfrac{\frac{1}{4}\times\frac{17}{2}}{100}\right]$$

$$= \left[10{,}000\left(1+\dfrac{17}{200}\right)\right]\left[1+\dfrac{17}{800}\right]$$

$$= \left[10{,}000\left(\dfrac{217}{200}\right)\right]\left[\dfrac{817}{800}\right]$$

$$= \dfrac{217\times817}{16}$$

$= 11080 - 56$ (approximately) $\hspace{3cm}$ (5m)

For finding

Compound Interest $\; = A - P$

$\hspace{3cm} = 11{,}080.56 - 10{,}000.00$

$\hspace{3cm} = ` 1080.56$ $\hspace{3cm}$ (1m)

12-B $\quad$ Selling Price of each cell phone $= ` 1980$

Profit on one $= 10\%$

Loss on the other $= 10\%$

For finding C.P, When Profit occurs

$\hspace{2cm}$ Cost Price $\quad = \dfrac{100\times S.P}{100+8\%}$

$\hspace{4cm} = \dfrac{100\times1980}{100+10}$

$\hspace{4cm} = \dfrac{100\times1980}{110}$

$\hspace{4cm} = ` 1800.00$ $\hspace{2.5cm}$ (2m)

For finding C.P , When loss occurs

$\hspace{2cm}$ Cost Price $\quad = \dfrac{100\times S.P}{110-\%}$

$\hspace{4cm} = \dfrac{100\times1980}{110-10}$

$\hspace{4cm} = \dfrac{100\times1980}{90}$

$\hspace{4cm} = ` 2{,}200.00$

For writing

        Total cost price = 1800+2200

                   = `4000.00

        Total selling price = 1980+1980

                   = `. 3960.00

For finding,

        Total cost price > Total selling price

        $\therefore$ on the whole loss occurs

    Loss% $= \dfrac{loss}{C.P} \times 100$

         $= \dfrac{40}{4000} \times 100$

         = 1         (2m)

13-A  For writing scale         (1m)

       For drawing axes and labelling     (2m)

       (on x-axis taking classes, frequency on Y-axis)

       For drawing 5 bars         (5m)

13-B  For preparation of table       (2m)

       (upper boundaries, less than cumulative frequency)

       For writing scale

       For drawing axes and lebelling

       ( on X-axis taking upper boundaries, less than cumulatie frequncies

        on Y-axis)         (2m)

       Plotting points and drawing graph     (3m)

## PART - B
## SECTION - IV

| | | | | | |
|---|---|---|---|---|---|
| 14 (D) | 15(A) | 16(D) | 17(A) | 18(B) | 19(D) |
| 20(C) | 21(C) | 22(B) | 23(D) | 24(B) | 25(C) |
| 26(A) | 27(C) | 28(B) | 29(C) | 30(A) | 31(C) |
| 32(B) | 33(D) | | | | |