Final Term Examination 2017-2018

Std. : VII **Full Marks : 80**

Subject : Mathematics **Time : 2hrs.+15mins. reading time**

Section — A [20 Marks]

Question - 1 **[2x10=20]**

(a) Evaluate : $6^{-2} \div (4^{-2} \times 3^{-2})$

(b) Find the reciprocal of the rational number $(\frac{1}{2})^{-2} \div (\frac{2}{3})^{-3}$

(c) Evaluate using identify : $135^2 - 125^2$

(d) Divide : $(8a^2b^3c + 4ab^2c^2 - 6\ abc) \div (-2a^2bc)$

(e) Solve for the variable indicated : $\frac{a}{b} = \frac{c}{6d}$ for c.

(f) Find the square root of 55696 by division method.

(g) Solve : $\frac{2}{5}\ y - \frac{5}{3} = \frac{2}{5}$

(h) The perimeter of a square garden is 36m. Find its area.

(i) Two complementary angles are in the ratio 2:3. Find the angles.

(j) Factorise : $\frac{16}{81}\ m^2 - 121$

Section — B [20 Marks]

Question - 2

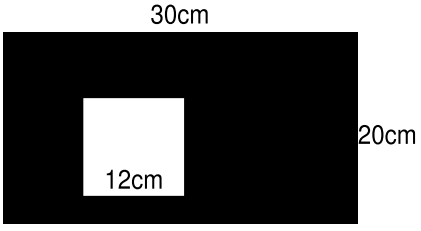
(a) Solve : $\frac{x-1}{3} - \frac{2x-3}{5} = 1$ [3]

(b) Which speed is greater : 54 km/hr or 15 m / sec. [3]

(c) Find the mean proportional between 0.32 and 0.08 [3]

(d) If a : b = 3 : 5 and b : c = 6 : 7, find a : b : c. [3]

(e) Find the area of shaded region [3]



(f) Factorise : $x^2 - ax - bx + ab$ [2+3]

$3x^3y - 243xy^3$

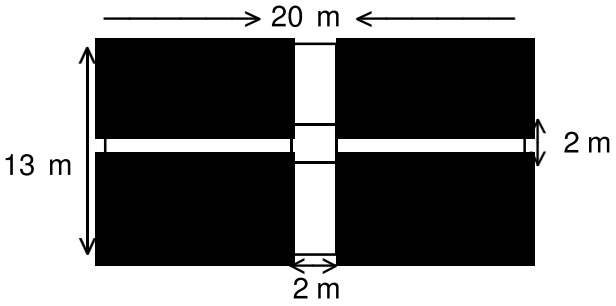
Section — C [20 Marks] [4x5=20]

Q3. (a) If $x - \frac{1}{x} = 8$, find the values of

(i) $(x^2 + \frac{1}{x^2})$ and (ii) $(x^4 + \frac{1}{x^4})$

(b) A train crosses a flag post in 11 sec. If the length of the train is 220m, find the speed of the train ?

(c) Find the area of the shaded region.



(d) The following table shows the market positions of some brands of soap. Draw a suitable bar graph.

Soap Brands	A	B	C	D	E
No. of Buyers	50	35	15	40	10

(i) Find the mean from the following data :

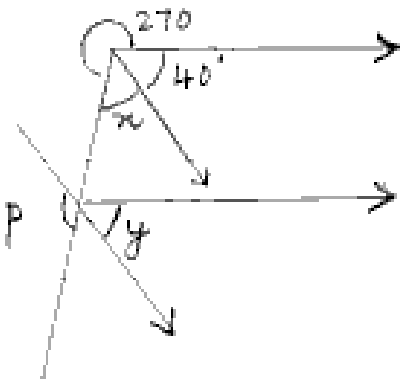
x	15	40	30	10	20
f	20	10	5	15	30

Section — D [20 Marks] [4x5=20]

Q4. (a) Construct a Δ ABC such that :

BC = 6 cm AC = 5.7 cm and $\angle ACB = 75^\circ$.

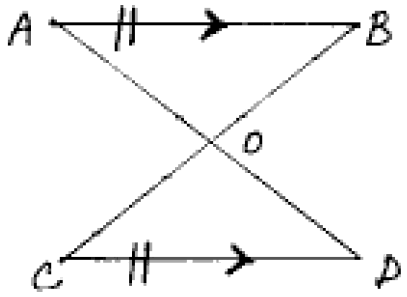
(b) Find x, y and p in the given figure. [Give reasons].



(c) In the given figure, AB // CD, and AB = CD Prove that :

(i) Δ AOB $\cong$ Δ DOC

(ii) AO = DO



(d) Find the unknown angles; giving reasons.