Quarterly Examination 2017-2018

Std. : VIII **Full Marks : 80**

Subject : MATHEMATICS **Time : 2hrs.+15min. reading time**

SECTION A

Answer all the questions.

Question - 1

(a) Factorise the following polynomials. (2x3=6)

(i) $x\,(12x+y) - 10$

(ii) $x^4 - y^4 + x^2 - y^2$

(iii) $x - 1 - (x - 1)^2 + ax - a$

(b) Find the greatest number of five digits which is a perfect square. [4]

Question - 2

(a) Using suitable identities, evaluate the following : [2x3=6]

(i) $87^2 - 13^2$ (ii) 105×107 (iii) 201×199

(b) If $x - \frac{1}{x} = 7$, evaluate (i) $x^2 + \frac{1}{x^2}$ (ii) $x^4 + \frac{1}{x^4}$ [4]

Question - 3

(a) Simplify : $\frac{5^{n+2} - 6 \times 5^{n+1}}{13 \times 5^n - 2 \times 5^{n+1}}$ [3]

(b) Find the square root of 5.462 correct of two decimal places. [3]

(c) In a group of 50 boys, 20 play one cricket, 12 play only football and 5 boys play both the games. Draw a Venn diagram and find the number of boys who play.

(i) atleast one of the two games cricket or football.

(ii) neither cricket nor football.

Question - 4

(a) Construct a triangle PQR such that PQ = PR = 3cm and $\angle P = 120^{O}$. measure $\angle Q$ and $\angle R$. Name the type of triangle. [4]

(b) The number of hours for which students of a class 8 watched television during holidays is recorded as follows. [4]

Hours of TV Watched per day	1 – 2	2 – 3	3 – 4	4 – 5	5 – 6	6 – 7
No. of Students	4	8	22	32	8	6

Draw a combined histogram & frequency polygon to represent the about data.

(i) Two coins are tossed together. Find the probability of getting.

(i) atleast one tail (ii) no tail

SECTION B [40 MARKS]

Answer any four questions

Question - 5 **(3+3+4)**

(a) Find the least number which must be subtracted from 2311 to make it a perfect square.

(b) (i) Express 121 as the sum of 11 odd numbers. [3]

(ii) How many numbers lie between 99^2 and 100^2.

(iii) Write a Pythagorean triplet whose one number is 17.

(c) Find the square root 0.00052 correct to three decimal places. [4]

Question - 6

(a) Simplify each of the following and express with positive index : [6]

(i) $32^{-2/5} - (125)^{-2/3}$ (ii) $\sqrt[4]{a^{-3}} \div \sqrt[4]{a^5}$

(b) If n (ξ) = 60, n (A) = 35, n (B') = 36 and n (A∩B)' = 51, then find : (i) n (B) (ii) n (A∩B) (iii) n (A∪B) (iv) n (A – B) [4]

Question - 7

(a) Factorise the following :

(i) $x^2 - 2xy + y^2 - z^2$ (ii) $6x^2 - 5xy - 6y^2$ [4]

(b) Divide : $(3x^3 - 6x^2 - 24x) \div (x - 4)(x+2)$ [3]

(c) If $a^2 + b^2 = 34$ and $ab = 15$, find the value of $a - b$. [3]

Question - 8

(a) Using the identities, evaluate the following : [4]

(i) $(6.9)^2$ (ii) 10.3 x 9.7

(b) Find the square root of the following fraction $\sqrt{\frac{225}{576}}$

(c) The following table shows the number of students in various hobby classes in KSMS. [4]

Hobby	YOGA	PAINTING	DANCE	G.K	LIGHT MUSIC
No. of Students	180	150	27	75	108

Represent the above data by a pie chart.

Question - 9

(a) Simplify and express the result in power notation with positive exponent : [3]

$$\left[\frac{2}{5}\right]^{-3} \times \left[\frac{2}{5}\right]^{2} \times \left[\left(\frac{2}{5}\right)^{2}\right]^{-2} \times \frac{1}{40}$$

(b) Find n so that $2^{11} \div 2^{5} = 2^{-3} \times 2^{2n-1}$ [3]

(c) Given below is the data of school going students (boys & girls) [4]

MODE OF TRANSPORT	SCHOOL BUS	WALKING	BICYCLE	OTHER VEHICLES
NO. OF BOYS	75	120	240	150
NO. OF GIRLS	135	60	180	90

Represent the above data by a double bar graph.

Question - 10

(a) Construct a triangle ABC, when : AB = 5.2 cm, $\angle A = 30^{\circ}$ and $\angle B = 75^{\circ}$ Draw the perpendicular bisector of the side AB. [4]

(b) Find the square root of 7 correct to 2 decimal places. Hence, find the value of $5 - \sqrt{7}$. [3]

(c) From the adjoining Venn diagram, find the following sets : [3]

(i) $A \cap B$ (ii) $(A \cup B)'$ (iii) $A - B$