

# GREENLAWNS HIGH SCHOOL

Std 10

MATHEMATICS

60M

Time 2 hours

Attempt all questions from Section A and any 3 questions from Section B.

Omission of essential steps will lead to loss of marks. Rough work must be done on the same page as the rest of the answer.

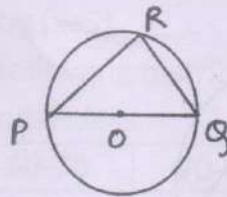
## SECTION A

(Attempt all questions from this section)

### Question 1

Choose the correct answers to the questions from the given options. (8)

- i) A dealer sells goods worth Rs 6400. If GST = 28% then tax paid to central government is  
a) Rs 896                      b) Rs 1792                      c) Rs 448                      d) Rs 560
- ii) If  $2x^2 - 6x + 1$  is divided by  $(x+2)$  then the remainder is  
a) 3                                  b) -3                                  c) 21                                  d) -21
- iii) The inclination of the line  $4y - 4x + 12 = 0$  is  
a)  $45^\circ$                               b)  $60^\circ$                               c)  $30^\circ$                               d)  $90^\circ$
- iv) In the figure drawn below, O is the centre of the circle  $\angle PQR = 70^\circ$   
Then  $\angle QPR$  is



- a)  $70^\circ$                                   b)  $20^\circ$                                   c)  $90^\circ$                                   d)  $60^\circ$
- v) The mean proportional between  $49a^2b$  and  $64a^4b^3$  is  
a)  $56a^2b$                               b)  $56a^2b^2$                               c)  $56ab$                               d)  $56a^3b^2$
- vi) Two players Rohit and Raj play a game of chess. If the probability of Rohit winning the game is 0.37 then the probability of Raj losing the game is  
a) 0.37                                  b) 0.63                                  c) 0                                  d) 1
- vii) The roots of the equation  $x^2 - 14x + 48 = 0$  are  
a) -6 & -8                              b) 12 & 4                              c) 6 & 8                              d) -12 & -4
- viii) If  $A = \begin{bmatrix} -1 & 4 \end{bmatrix}$  then the order of A is  
a)  $2 \times 1$                                   b)  $1 \times 2$                                   c)  $1 \times 1$                                   d)  $2 \times 2$

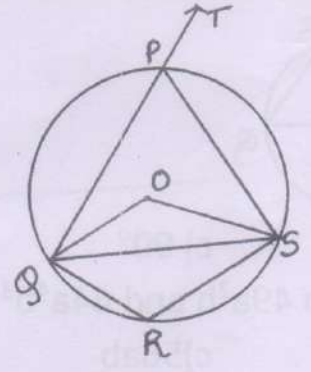
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**Question 2**

- i) From the letters of the word 'CIRCUMCENTRE' a letter is chosen at random. Find the probability that the letter chosen is (4)
  - a) Vowel
  - b) Consonant
  - c) C or T
  - d) Neither of the letters R nor U
- ii) Mrs Das has a recurring deposit account for 3 years at 9% p.a. if she gets Rs 65592 at the time of maturity find the monthly instalment. (4)
- iii) Solve for x using the properties of proportion (4)
$$\frac{\sqrt{x+3} + \sqrt{x-4}}{\sqrt{x+3} - \sqrt{x-4}} = \frac{7}{3}$$

**Question 3**

- i) Solve the following linear inequation and graph the solution on a number line (3)
$$3x - 8 \leq 27 - 2x \leq 4x + 3, x \in \mathbb{N}$$
- ii) In the figure drawn below O is the centre of the circle,  $\angle TPS = 130^\circ$ , Find  $\angle QRS, \angle QOS, \angle OQS$  (3)



- iii) Use a graph paper for this question (4)
  - i) Plot points A(0,5), B(4,3) and C(4,0)
  - ii) Point A(0,5) is invariant in line  $L_1$ . Write the name of line  $L_1$
  - iii) Reflect B & C in line  $L_1$  to get B' and C'
  - iv) Write the geometric name of the figure ABCC'B'

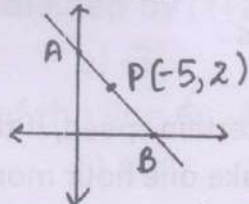
**SECTION B**  
**(Any 3 out of 4)**

**Question 4**

- i) If D (-1,6) , E(-3,-9) & F(5,-8) are vertices of  $\triangle DEF$ . Find the equation of the altitude through D. (3)
- ii) A wholesaler purchased certain goods for Rs 180000. He sold those goods to a retailer for Rs 220000. The retailer then sold it to a customer for Rs 240000. If the rate of GST is 18% calculate (3)
  - a) Tax paid by retailer to the state government
  - b) Price paid by the customer
- iii) Construct a regular hexagon whose each side is 4.5cm Inscribe a circle to this hexagon and mention the radius. Use a compass and ruler only (4)

**Question 5**

- i) In the figure drawn below P(-5,2) divides AB in the ratio 1:2 find the coordinates of A & B. (3)



- ii) Find 'a' if  $2x^3 + x^2 + ax + 60$  &  $x^3 + ax^2 + 2x - 24$  leave the same remainder when divided by  $(x+3)$  (3)
- iii) Draw a histogram for the following distribution. Estimate the mode and mention the modal class. (4)

CI	50-60	60-70	70-80	80-90	90-100	100-110
f	8	10	15	12	7	5

**Question 6**

- i) If  $A = \begin{pmatrix} 2 & 1 \\ 0 & -1 \end{pmatrix}$  &  $B = \begin{pmatrix} 1 & -1 \\ 3 & 2 \end{pmatrix}$ , find  $A^2 - 2B$  (3)
- ii) Solve the following quadratic equation and express your answer correct to 1 decimal place (3)

$$x^2 - 8x - 6 = 0$$

... 4/-

iii) Find a & b if  $\sum f = 40$  and mean of the following distribution is 52 (4)

CI	10-20	20-30	30-40	40-50	50-60	60-70	70-80
f	5	3	a	7	2	b	13

**Question 7**

i) The distribution drawn below shows the number of people in different age groups of a particular society (6)

Age	5-15	15-25	25-35	35-45	45-55	55-65	65-75	75-85	85-95
No. of people	22	35	13	9	34	30	50	29	8

Draw an ogive for the above distribution. Use the ogive to estimate

- a) Median
- b) Upper Quartile
- c) Number of people below 42 years
- d) Number of people above 83 years

ii) An express train covers 240km at a certain speed, if the speed of the train is reduced by 20 km/hr then it will take one hour more to cover the same distance. Find the original speed of the express train. (4)

CI	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100	100-110
f	8	10	12	15	7	5	3	2	1