**GREENLAWNS HIGH SCHOOL**

**Std 10 Mathematics 80M**

**Time 2.5 hours Terminal Examination 2023**

Attempt all questions from Section A and any four questions from Section B. All working including rough work must be clearly shown and done on the same sheet as the rest of the answer. Omission of essential steps will result in loss of marks.

**Section A**

(Attempt all questions from this section)

**Question 1**

 Choose the correct answers to the questions from the given options (15)

1. Asha deposits Rs 3000 every month for 2 years in a recurring deposit account at 6% p.a. then the interest earned by her is
2. Rs 4500 b) Rs 450 c) Rs 45 d) Rs 405
3. The slope of the line perpendicular to 5x + 3y = 7 is
4. $\frac{-5}{3}$ b) $\frac{5}{3}$ c) $\frac{3}{5}$ d) $\frac{-3}{5}$
5. $\begin{matrix}-3&0 \end{matrix}$ $ \begin{matrix}1\\-2\end{matrix}$ = X , then the order of matrix X is
6. 2 X1 b) 2X2 c) 1X1 d) 1X2
7. In the figure drawn below AB=15cm ,PA= 20cm then the length of PT given PT is a tangent to the circle at T is

1. 10 cm b) 15cm c) 100cm d) 75cm
2. The solution for the inequation -2$\leq 2x-2 <8 , x \in W $is
3. 1,2,3 b) 0,1 ,2,3,4 c) 1,2,3,4 d) 0,1,2,3
4. The volume of a cone whose height is 12cm and area of base is 250 cm2 is
5. 1000 cm3 b) 1000 cm2 c) 3000cm3 d) 3000 cm2
6. The 15th term of the AP 6, 13, 20…. Is
7. 103 b) 104 c) 105 d) 106
8. If one root of the equation 2x2 + kx + 4 = 0 is 2 then the value of k is
9. -6 b) -1 c) 0 d) 6
10. The third proportional to 1.6 and 2.4 is
11. 2.7 b) 3.8 c) 3.6 d) 4
12. If the image of point Q( a, b) on reflection is Q’ (-a, b) .Then Q is reflected in the
13. Origin b) Y- axis c) X- axis d) line x=a
14. The modal class of the below distribution is

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CI | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 |
| f | 2 | 7 | 10 | 5 | 3 |

1. 30-40 b) 40-50 c) 10- 20 d) 20-30
2. A dealer sells an article for Rs 30000, if the rate of GST is 12% then the bill amount is
3. Rs 33600 b) Rs 3600 c) Rs 36300 d) 33000
4. A game is played between players A and B. If the probability of A losing the game is 0.78 then the probability of B losing the game is
5. 0.78 b) 0 c) 1 d) 0.22
6. If A (-5,7) and B(3,9) are vertices of $∆$ ABC ,AD is the median through vertex A. The coordinates of D are(2,1) then the coordinates of vertex C is
7. (1,-7) b) (1,7) c) (-7,1) d) (7,1)
8. If a dealer invests Rs 8000 in shares selling at Rs 125 then the number of shares bought by him are
9. 64 b) 640 c) 80 d) 800

**Question 2**

1. If the fourth term of an AP is 6 and the sixth term exceeds twice the (4)

third term by 2 find the 25th term.

1. Anil deposits Rs 500 per month in a recurring deposit account. If he (4)

gets Rs 28410 after 4 years on maturity, calculate the rate of interest paid by the bank.

1. In the figure drawn below PQ is a tangent to the circle at C. If O is the (4) centre of the circle $∠DCQ=50°$ and $∠ABD=65°$ find
2. $∠DBC$ b) $∠BCP$ c) $∠BDC$ d) ADB

**Question 3**

1. A and B are two points on X-axis and Y-axis respectively. Q(-4,6) is (4)

 the midpoint of AB. Find a) coordinates of A and B

 b)equation of AB

1. A bag contains identical cards numbered 51 to 100. One card is (4)

drawn at random from the bag. Find the probability that the card

drawn is

1. a prime number between 80 to 90
2. a composite number less than 65
3. a prime number and a composite number
4. factor of 90
5. Use a graph paper for this question (5)
6. Plot points A(4,7), B(6,5) and C(0,0)
7. Reflect A and B in the Y-axis to get A’ and B’ respectively write its coordinates
8. Write the geometrical name of the figure ABCB’A’
9. Name any one point on the figure which is invariant in both the X-axis and Y-axis

**Section B**

(Attempt any 4 out of 5 questions from this section)

**Question 4**

1. Solve the following linear inequation and graph the solution on a (3)

 real number line

 $\frac{-1}{3} \leq \frac{x}{2}-1\frac{1}{3} <\frac{1}{6 } , x\in R$

1. A girl fills a cylindrical glass whose height is 25cm and radius is (3)

14 cm with sand. She empties the cylindrical glass on the ground and makes a conical heap of sand. If the height of the conical heap of sand is 12cm calculate its radius and hence its slant height.

1. Calculate the mean of the following distribution using the step (4)

deviation method. Express your answer correct to the nearest whole number.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **CI** | **100-150** | **150-200** | **200-250** | **250-300** | **300-350** | **350-400** | **400-450** | **450-500** |
| **f** | **24** | **40** | **33** | **28** | **30** | **22** | **16** | **7** |

**Question 5**

1. What number must be added to each of the numbers 7, 16, 43 and (3)

79 to make them proportional.

1. Mrs Shah buys the following items from a store (3)

|  |  |  |
| --- | --- | --- |
| Item | Quantity | Rate per Item |
| Dinner Set | 4 | RS 3000 |
| Bowls | 1 dozen | Rs 200 per piece |
| Cutlery | 2 dozen | Rs 500 per dozen |

If a discount of 10% is offered on each item and the rate of GST is 18% calculate the total bill paid by Mrs Shah including GST

1. Using Factor Theorem show that (x+3) is a factor of x3 – 6x2+ 11x - 6 (4)

And hence factorise the given polynomial completely.

**Question 6**

1. Solve the following quadratic equation and express your answer (3)

Correct to 3 significant figures.

 2x2 -5x -8 = 0

1. If A(1,-2) , B(2,6) and C(7,12) are vertices of a parallelogram ABCD (3)

Find the coordinates of vertex D.

1. Construct a regular hexagon whose each side is 5.1cm. Inscribe a (4)

Circle to this hexagon and record its radius. (use a compass and ruler only)

**Question 7**

1. Find matrix Q such that $\begin{matrix}3&-2\\1&4\end{matrix}$ x Q = $ \begin{matrix}-9\\25\end{matrix}$ also mention the (3)

 order of Q

1. Which term of the GP 4,8,16,32…. is 4096 (3)
2. Rohit buys 80 shares available at Rs 100 selling at Rs 125. If the (4)

Dividend offered by the company is 7.5%

Calculate a) His investment

 b)Annual Income

 c)If he wants to increase his income by Rs 120 how many

 extra shares should he buy.

**Question 8**

1. The weight of a group of students is given below (6)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Weight(in kg) | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | 90-100 | 100-110 |
| No of Students | 20 | 45 | 65 | 95 | 60 | 30 | 5 |

Draw an Ogive for the above distribution on a graph sheet by taking

2cm = 10 kg on one axis and 2cm = 50 students on the other axis. Use the ogive to estimate

1. Median weight
2. Number of students whose weight is less than 65kg
3. Number of students whose weight is more than 92 kg
4. Lower Quartile
5. Rs 6500 was equally divided among a certain number of people (4)

Had there been 15 people more each person would have got Rs 30 less. Calculate the original number of people.