NEW AL WUROOD INTERNATIONAL SCHOOL,JEDDAH

Affiliated to CBSE – New Delhi, No:5730008

Pre-Midterm Examination (2018 -2019)

MATHEMATICS
X

Marks Allowed:03 Hours   **Max.Marks: 80**

General Instructions:

i)   *All questions are compulsory.*

ii)   *The question paper consists of 30 questions divided into four sections A,B,C and D.*

iii) *Section- A comprises of 6 questions of 1 mark each, Section-B comprises of 6 questions of 2 marks each, Section-C comprises of 10 questions of 3 marks each and Section-D comprises of 8 questions of 4 marks each.*

iv)   *There is no overall choice. However, an internal choice has been provided in four questions of 3 marks each and three questions of 4 marks each.*

SECTION-A

1. The HCF of two numbers is 125 and their LCM is 7500. If one of the numbers is 250, find the other.

2. State the fundamental theorem of arithmetic.

3. For what value of k, -3 is a zero of $f(x) = 2x^2 + kx + 6$?

4. What is the point of intersection of the line represented by $3x – 2y = 6$ and the y-axis?

5. Find the coordinates of the point $P(x, y)$ which divides the line segment joining $A(x_1,y_1)$ and $B(x_2, y_2)$ internally in the ratio m : n.

6. If median = 24 and mean = 25, find mode of the distribution.

SECTION-B

7. Find the HCF of 4032 and 262 using Euclid's division algorithm.

8. Find the zeroes of $2x^2-9x+10$ and verify the relationships between the zeroes and the coefficients of the polynomials.

9. For what value of k the following system of linear equations has a no solution?

   $x + 2y = 3$

   $(k - 1)x + (k + 1)y = k + 2$

10. Solve : $5x - 4y + 8 = 0$, $7x + 6y - 12 = 0$ (Substitution method)

11. Show that the points (7,10),(-2,5) and (3,-4) are the vertices of an isosceles triangle.

12. What is the mean of 1st ten prime numbers?

SECTION-C

13. Use Euclid's lemma to show that the square of any positive integer is either of the form 3m or 3m+1 for some integer m.

OR

   Prove that $3 + 2\sqrt{5}$ is irrational.

14. A sweet seller has 420 kaju barfis and 130 badam barfis. She wants to stack them in such a way that each stack has the same number, and they take up the least area of the tray. What is the maximum number of barfis that can be placed in each stack for this purpose?

15. If α,β are the zeros of the polynomial $x^2 + 8x + 6$ frame a quadratic polynomial whose zeros are $\frac{1}{\alpha}$ and $\frac{1}{\beta}$.

OR

   Divide the polynomial $p(x) = -x^3 + 3x^2 - 3x + 5$ by $g(x) = x - 1 - x^2$

16. Find the value for K for which $x^4 + 10x^3 + 25x^2 + 15x + K$ exactly divisible by $x + 7$

17. Solve the following system of linear equations graphically.

   $2x + 3y = 12$; $2y - x = 1$

18. Solve the following equations by cross-multiplication method

$0.2x + 0.3y = 1.3$; $0.4x + 0.5y = 2$

OR

Solve the following equations by elimination method

$8x - 3y = 13$; $3x + 2y = 8$

19. If A and B are (1,4) and (5,2) respectively.Find the coordinates of P when $\frac{AP}{PB} = \frac{3}{4}$

OR

In what ratio is the line joining the points A(4,4) and B(7,7) divided by P(-1,-1)?

20. Show that (1,-1),(2,1) and (4,5) are collinear.

21. Find the mode for the following data.

Profit(in Rs 100)	0-25	25-50	50-75	75-100	100-125	125-150
Frequency	10	30	40	25	20	15

22. The mean of the following frequency distribution is 62.8.Find the missing frequency x.

Class	0-20	20-40	40-60	60-80	80-100	100-120
Frequency	5	8	x	12	7	8

SECTION-D

23. Prove that $\sqrt{3}$ is an irrational number.

24. Find all the zeros of $2x^4 - 3x^3 - 3x^2 + 6x - 2$.If two of it's zeros are $\sqrt{2} and \sqrt{3}$.

25. Coach of a cricket team buys one bat and 2 balls for Rs. 300. Later he buys another 2 bats and 3 balls of the same kind for Rs. 525. How much money coach will pay for the purchase of one bat and one ball.

OR

Rahul can row downstream 20km in 2 hours , and upstream 4km in 2 hours. Find his speed of rowing in still water and speed of the current.

26. Solve : $\dfrac{10}{x+y} + \dfrac{2}{x-y} = 4$

$\dfrac{15}{x+y} - \dfrac{5}{x-y} = -2$

OR

Solve: $\dfrac{2}{x} + \dfrac{3}{y} = 13$; $\dfrac{5}{x} - \dfrac{4}{y} = -2$

27. A man has a triangular plot with the vertices (5,-5) ,(4,3) and (6,2) . He divides it into three equal parts , one to his son and another to his daughter .The third part he allocated to child trust. What is the area of the land gives to the child trust? What are the values you learn from the man?

28. Find the area of the triangle formed by the joining the mid points of the sides of the Triangle whose vertices are (0,-1), (2,1) and (0,3). Find ratio of the area of the triangle formed to the area of the given triangle.

29. Draw a less than type for the following distribution on the graph. Also find the median from the graph.

Marks	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Students	5	10	12	6	7	7	3

30. Find the mean of the following frequency distribution using step deviation method.

Class	100-120	120-140	140-160	160-180	180-200
Frequency	12	14	8	6	10

OR

Find the mean of the following frequency distribution using assumed mean method.

Class	10-25	25-40	40-55	55-70	70-85	85-100
No of Students	2	3	7	6	6	6