RAMAGYA SCHOOL, NOIDA
MATHS/OLYMPIAD WORKSHEET/(2017-18)
CLASS – X

CONCEPT BASED

1. For some integer m, every even integer is of the form:
   a) m b) m+1
   c) 2m d) 2m+1
2. The product of a non-zero rational and an irrational number is:
   a) Always irrational b) Always rational
   c) Rational or irrational d) One
3. For some integer q, every odd integer is of the form:
   a) q b) q+1
   c) 2q d) 2q+1
4. If a quadratic polynomial of the form x^2+ax+b has no linear term and the constant term is negative, then _____.
   a) One of the zeroes is reciprocal of other b) One of the zeroes is negative of other.
   c) One of the zeroes is twice of the other. d) One of the zeroes is half of the other.
5. If (2,-2), (-2, 1) and (5, 2) are vertices of a right angled triangle, then the area of the triangle is __
   a) 12.5 sq. units b) 22.5 sq. units
   c) 12 sq. units d) 20 sq. units
6. Is area of a parallelogram with sides 'l' and 'b' is 'A' and that of the rectangle with sides 'l' and 'b' is 'B', then_____
   a) A<B b) A=B
   c) A>B d) None of these
7. $n^2 - 1$, is divisible by 8, if n is:
   a) an integer b) a natural number
   c) an odd integer d) an even integer

APPLICATION BASED

8. A hemispherical container with radius 6 cm contains 325 ml of milk. Calculate the volume of milk that is needed to fill the container completely. ($\pi = 3.142$)
   a) 117.45 ml b) 107.40 ml
   c) 127.45 ml d) 127 ml
9. A set of numbers consists of four 5's, six 7's, ten 9's, eleven 12's, three 13's, and two 14's. The approximate difference between mean and median of this set of numbers is_____
   a) 1 b) 2
   c) 5 d) 4
10. The largest number which divides 70 and 125, leaving remainders 5 and 8 respectively is:
   a) 13 b) 65
   c) 875 d) 1750

11. The least number that is divisible by all the numbers from 1 to 10 (both inclusive) is:

a) 10 b) 100

c) 504 d) 2520

12. If two positive integers a and b are written as $a=x^2y^2$ and $b=cy^3$; x, y are prime numbers the HCF(a, b) is:

a) xy b) xy^2

c) x^3y^3 d) x^2y^2

13.If two positive integers p and q are expressed as $p=ab^2$ and $q=a^3b$ where a and b being prime numbers, then LCM (p, q) is:

a) ab b) a^2b^2

c) a^3b^2 d) a^3b^3

14. If 323x41=14323; 137x72=27731 and 48x87=7884, then 34x75=?

a) 5743 b) 7534

c) 2550 d) 4357

HOTS(High order thinking skills)

15. If the HCF of 65 and 117 is expressible in the form 65m-117, then the value of m is:

a) 4 b) 2

c) 1 d) 3

16. The decimal expansion of the rational number 14587/1250 will terminate after:

a) One decimal place b) Two decimal places

c) Three decimal places d) Four decimal places

VALUE BASED

17. In a shop, there were 4 dolls of different heights A, B, C and D. D is neither as tall as A nor as short as C. B is shorter than D but taller than C. If Mani wants to purchase the tallest doll, which one should she purchase?

a) Only A b) Only D

c) Either A or D d) Either B or D

18. All the faces of a cube are painted with blue colour. Then it is cut into 125 small equal cubes. How many small cubes will be formed having no face coloured?

a) 27 b) 8

c) 16 d) 24

19. In a row of 40 boys, Satish was shifted 10 places to the right of Rohan and Kewal was shifted 10 places to the left of Vilas. If Vilas was twenty-sixth from the left and there were three boys between Kewal and Satish after shifting, what was the position of Rohan in the row?

a) 10^{th} from the right end b) 10^{th} from the left end

c) 39^{th} from the right end d) Data inadequate

20. Rohit walked 25m towards south. Then he turned to his left and walked 20m. He then turned to his left and walked 25m. He again turned right and walked 15m. At what distance is he from the starting point and in which direction?

a) 35m east b) 35m north

c) 40m east d) 60m east