VIDYA BHARATI SCHOOL

FEBRUARY OLYMPIAD

CLASS X

SUBJECT-MATHS

Q1. The reminder when the square of any prime number greater than 3 is divided by 6 is

a) 1 b) 2 c) 4 d) 3

Q2 The intersection of two ogives curve known as

a) Mean b) Median c) MODE d) None of these

Q3 The remainder when $x^{81}+x^{49}+x^{25}+x^{9}+x$ is divided by $x^{3}-3$

a) 21 b) 24 c) 26 d)None of these

Q4 If four times the reciprocal of the circumference of a circle equals the diameter of the circle,then the area of the circle

a) 15 b) 27 c) 38 d)None of these

Q5 if $1-(4/x)+(4/x^{2})=0$ then $2/x$ =

a) 4 b) 5 c) 6 d)None of these

Q6 if the sum of two numbers is 1,and their product is 1,then the sum of their cubes

a) -3 b) 4 c) -2 d)None of these

Q7 Find the remainder when $2^{2005}$is divided by 13.

a) 2 b) 15 c) 17 d)None of these

Q8The base of pyramid is an equilateral triangle of side length 6 cm. the other edges of the pyramid are each of length 15 cm. The volume of the pyramid.

a) 18 b) 25 c) 45 d)None of these

Q9chords AB and CD of A circle intersect at E and are perpendicular to each other segment AE,EB and ED are of lengths 2 cm. ,6cm, and 3cm. respectively. The length of diameter of the circle

a) 3/2 b) 7 c) 9 d)None of these

Q10Three men A,B and C working together, do a job in 6 hours less time than A alone, in 1 hour less time than B alone, and in one half the time needed by C when working alone, how many hours will be needed by A and B working together , to do the job

a) 12 b) 15 c) 11 d)None of these

Q11In triangle ABC right angled at B, a point P is taken on the side AB such that AP=h and BP=b and AC = Y such that h+y = b+d .which condition will be verify

b) h=bd/(2b+d) b) b=hd(2b+d) c) d=bh(2d+b) d)None of these

Q12The Triangle has CA=CB.P is a point on the circum circle betweenA and B.(and on the opposite side of the line ABto C). Dis the foot of the perpendicular from C to PB the PA +PB =

a) PD b) 2PD c) 3PD d)None of these

Q13The largest prime factor of$3^{12}+2^{12}-2.6^{6}$

a) 13 b) 17 c) 19 d)None of these

Q14 Without actually calculating, Find which is greater: x= 31^{11},y = 17^{14}

a) x b) c) d)None of these

Q15 Find x if x-1 + x +x+1 = x+2

a) 1 b) 0 c) 3 d)None of these

Q16 Find the greatest number of four digits which when divided by 3,5,7,9 leaves the remainders 1,3,5,7 respectively.

a) 9897 b) 7895 c) 7898 d)None of these

Q17 A printer numbers the pages of a book starting with 1. He uses 3189 digits in all .How many pages does the book have ?

a) 195 b) 298 c) 325 d)None of these

Q18 ABCD is parallelogram P,Q,R and S are points on side AB,BC,CD and DA respectively such that AP =DR. if the area of the parallelogram is 16 cm2, the area of quadrilateral

a) 5 b) 12 c) 13 d)None of these

Q19 The numbers ,both lying 60 and 70 ,each of which is exactly divides 2^{43} -1

a) 13 b) 34 c) 39 d)None of these

Q20 A polynomial p(x) leaves a remainder three when divided by x-1 and a remainder five by x-3. The remainder p(x) is divided by (x-1)(x-3) is

c) 5 b) 7 c) 9 d)None of these