S.R.D.A.V PUBLIC SCHOOL ,PUPRI [SITAMARHI]

 MODEL QUESTION PAPER

STD-X SUB-MATHEMATICS

 CHAPTER-01(REAL NUMBERS)

\*Problems related to Euclid's division lemma.

1.Using Euclid's division algorithm,find HCF of the no.'s.

(i)504 and 980 (ii)196 and 38220.

2.Using Euclid's algorithms,find HCF of 1651 and 2032 & express the HCF in the form of

1651m+2032n.

3.Using Euclid's algorithm ,find HCF of 234 & 111 and express the HCF in the form of 234x+111y.

4.State Euclid's division lemma. Also show that cube of any + ve integer is of the form 9w,9w+1 or 9w+8,for some integer w.

5.Prove that square of any any +ve is of the form 5m+1 will leave a remainder 1 when divided by 5 for some integer w.

6.The Product of any three consecutive +ve integers is divisible by 6.Is this statement true or false?Justify your answer.

7.Prove that one and only one out of n,n+2,n+4 is divisible by 3,where n is any +ve integer.

8.Prove that if x and y are odd +ve integers,then x2+y2 is even,but not divisible by 4.

9.If a and b are two odd +ve integers such that a>b then prove that the one of the two no.'s a+b/2 and

a-b/2 is odd and other is even.

10.Show that for odd +ve integer to be a perfect square,it should be of the form 8k+1.

\*Problems on Fundamental theorme of Arithmetics.

11.State Fundamental theorum of arithmetics.Also,check whether 6n,nEN can never be end with the digit 0.

12.Check whether 5n ,nEN can never end with the digit 2.

13.Check whether 7 n ,nEN can never end with the digit 0.

14.Show that 21n ,nEN can’t end with the digit 0,2,4,6 and 8.

\*Problems related to LCM & HCF of no.’s.

15.can two no.’shave 18 as their HCF and 380 as their LCM ? Give reasons.

16.LCM of two no.’s is 10 times their HCF.Sum of HCF andLCM is 495.If one is 90 ,then find the other n.

17.HCF and LCM of two no.’s are 33 and 264 respectively.When the first no. is completely divided by 2, the quotient is 33.Find the other no.

18.Find the greatest no. that will divide 445,572 & 699 leaving remainder 4,5 & 6 respectively.

19.Find the smallest no. which when increased by 20 is exactly divisible by 90 & 144.

20.Find the greatest no. of 5- digits exactly divisible by 12,15 & 36 .

21.Find LCM &HCF of 2.5,0.5 & 0.175.

22.Find the smallest no. which leaves remainders 8 & 12 when divided by 28 & 32 respectively.

23.If A=2n+13 and B=n+7 , where n is natural no. then find HCF of A &B.

24.If least Prime factor of a is 5 and least prime factor of b is 13 then what is the least Prime factor of a & b.

25.Find Pairs of natural no.’s whose least common multiple is 78 and greatest divisor is 13.

26.Find the least no. of square tiles required to pare the ceiling of room 15m17cm

Long and 9m2cm broad.

27.The traffic lights at three different road crossings change after every 48 seconds,72 seconds and 108 seconds respectively.If they change simultaneously at 8 a.m then what will they again change simultaneously?

28.Six bells commence tolling together and toll at interval of 2,4,6,8,10,12 minutes resp.In 30 hrs ,how many times do they toll together?

\*Problems on Rational no.’s :-

29.Express the following decimals into rationals with simplest/standard form

(1)0.32̅(2) 0.25͞4 (3) 0.5̅6͞7

30.Without actual division check whether the given rationals have terminating and repeating decimal representation.

(i)15/1600 (ii) 129/22+\*52\*72 (iii)441/22\*53\*7(iv)619/325(v)427/625

31.The decimal expansion of the rational no. 43/24,53 ,will terminate after how many places of decimal.

\*Problems of irrational no.’s.

32.Find three rational between$\sqrt{2}$ and $\sqrt{3}$.

33.Show that $\sqrt{7}$ is an irrational no.

34.Show that 3+5 $\sqrt{2}$ is an irrational given that $\sqrt{2 }$is an irrational.

35.Show that $\frac{1}{\sqrt{7}}$ is an irrational .

36.Show that $3\sqrt{6} $is an irrational .

35.Show that$\sqrt{ p}+\sqrt{q} $ is an irrational . where p and q are primes.

35.Show that there is no integer n for which $\sqrt{n-1 }$+ $\sqrt{n+1}$ is rationals.

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