QN	TYBSc(Mathematics) Subject: MTH-506(B):Number Theory Question Bank	ANS			
1)	Difference of two distinct prime numbers is	В			
	A) odd and prime B) even and composite C) neither prime nor composite D) all of the above				
2)	A solution of Diophantine equation $10x + 6y \equiv 110$ is A) $(7,5)$ B) $(8,5)$ C) $(6,5)$ D) none of the above	В			
3)	If gcd of two numbers is 1, then the two numbers are said to be	В			
	A) prime numbers B) co-prime numbers C) composite numbers D) rational numbers				
4)	Euclid's algorithm is used for finding				
	A) gcd of two numbers B) gcd of more than two numbersC) lcm of two numbers D) none of the above				
5)	A linear Diophantine equation ax + by = c has a solution iff d c where d is A) gcd (a,c)B) gcd (a,b) C) gcd (b,c) D) lcm (a,b)	В			
6)	Which of the following is an odd composite number?	В			
	A) 83 B) 95 C) 67 D) 37				
7)	What is last digit of 2100 is				
0/	A) 2 B) 4 C)6 D) 8 An integer p > 1 is called a , if its only positive divisors are 1 and p.	C B			
	A) composite number B) prime number C) rational number D) none of the above	В			
9)	The number of primes lies between 1 and 50 =	A			
	A) 15 B) 12 C) 16 D) 17				
10)	Which one of the following is a prime number? A) 161 B) 171 C) 173 C) 221	С			
	A_j ioi B_j iii B_j iii B_j iii B_j iii				

11)	System of linear congruences has solutions	В
	A) Infinite B) unique C) both A and B D) none of the above	
12)	Let $d = \gcd(a, n)$ then $ax \equiv b \pmod{n}$ has solution if and only if	В
	A) b d B) d b C) d a D) d n	
13)	The congruence $ax \equiv b \pmod{n}$ is called	A
	A) linear congruence B) quadratic congruence	
	C) Cubic Congruence D) none of the above	
14)	The number 5233779 is divisible by	С
	A) 11 B) 5 C)9 D) 7	
15)	What is the remainder when 48 is divided by 3?	A
	A) 0 B) 3 C) 16 D) 48	
16)	The only prime of the form N ³ - 1 is	С
	A) 3 B) 5 C) 7 D) 11	
17)	Which of the following is true ?	D
	A) $gcd(4,5) = 5$ B) $gcd(4,5) = 4$ C) $gcd(4,5) = 3$ D) $gcd(4,5) = 1$	
	Every even integer greater than 2 can be written as the sum of two primes is	В
	known as	
	A) Fermat's number B) Goldbach conjecture	
	C) Mersenne primes D) none of the above	~
19)	How many different factors does 48 have excluding 1 and 48?	C
	A) 12 B) 4 C) 8 D) 10	
20)	The number √2 is	A
	A) irrational B) rational C) prime D) none of the above	
21)	Number of digits in decimal representation of any integers are	C
	A) 2 B) 100 C) 10 D) none of the above	
22)	When a≡b(mod n) then remainder of a and b when divided by n are	A
	A) Same B) different D) none of the above	

23)	a≡b(mod n) means	C
	A) $n \mid (a - b)$ B) $a = b + qn$	
	C) both A and B D) none of the above	
24)	If a≡b(mod n) and b≡c(mod n) then A) ac ≡ bc(mod n) B) a ≡ c(mod n) C) both A and B. D) none of the above	В
25)	What is the remainder when 1! + 2! + 3! + 4! is divided by 12?	В
	A) 0 B) 9 C) 12 D) 3	
26)	When 16! is divided by 17 then remainder is	В
	A) 1 B) -1 C) 0 D) none of the above	
27)	The first perfect number is	A
	A) 6 B) 24 C) 8 D) 4	
28)	When 5 ¹⁰ is divided by 11, the remainder is	С
	A) 5 B) 0 C) 1 D) 11	
29)	If (p - 1)! ≡ -1 (mod p) then p is a	D
	A) composite number B) odd number C) finite number D) prime number	
30)	Which of the following is a perfect number?	A
	A) 28 B) 27 C) 26 D) 25	
31)	A composite number n is called pseudo prime if	С
	A) $n \mid (2^n+1) \mid B) \mid n \mid (2^n-1) \mid C) \mid n \mid (2^n-2) \mid D)$ none of the above	
32)	If a ≡ b (mod n) then A) b ≡ a (mod n) B) ac ≡ bc (mod cn) C) a ^k ≡ b ^k (mod n) D) all of the above	D
33)	If $ax \equiv b \pmod{n}$ and $gcd (a, n) = 1$ then system has solutions modulo n.	В
	A) n B) 1 C) a D) b	
34)	A number when divided by 2 ,3 ,or 5 gives remainder 1. This number is	A
	A) 31 B) 47 C) 49 D) 53	
35)	The solution of the linear congruence 4x ≡ 5 (mod 9) is	В
50)	into column of the mical congruence in - o (mod o) io	

	A) 6 (mod 9) B) 8 (mod 9) C) 9 (mod 9) D) none of the above	
	The numbers 2 ⁿ -1, n>1 are called as A) perfect numbers B) Mersenne numbers C) Fermat numbers D) none of the above	В
37)	The last digit of Fermat's number F _n , n ≥ 2 is	С
38)	A) 1 B) 5 C) 7 D) 10 For m > n \geq 0, the Fermat's numbers F_m and F_n are	A
	A) relative prime B) composite number	
	C) even number D) odd number	
39)	The Mersenne number M ₁₉ is A) perfect number B) prime number D) pseudo prime number C) composite number	В
40)		В
	If 2 ⁿ ≡ 2 (mod n) then n is called as A)Prime number B) pseudo prime number C) odd number. D) even number	
41)	If for some integer k > 1, 2 ^k -1 is a prime then 2 ^(k-1) (2 ^k -1) is A)Fermat number B) perfect number C) Mersenne number D) none of the above	В
42)	The prime factors of 2 ¹¹ -1 are A) 89, 23 B) 45, 46 C) 56, 33 D) 57, 38	A
43)	An integer having the remainders 3 ,11, 15 when divided by 10, 13, 17	В
	respectively is	
	A) 1003 B) 1103 C) 1203 D) 1303	
44)	Which of the following is a Mersenne prime number? A) M_6 B) M_7 C) M_4 D) M_8	В
45)	Let p be a prime and ab ≡ 1 (mod p) with b ≡ a (mod n) then	С
,	A) $ab \equiv a \pmod{p}$ B) $b^2 \equiv a \pmod{p}$ C) $a^2 \equiv 1 \pmod{p}$ D) none of the above	

46)	Which of the following is a prime Fibonacci number? A) 5 B) 7 C) 11 D) 17	
47)	Two successive odd integers p and p+2 which are primes are called A) Pseudo primes B) twin primes C) Mersenne primes D) none of the above	
48)	If p is prime and p not divides a then	
49)	The integer of the form 2 ²ⁿ +1, n ≥ 0 is called as A) Perfect number B) Fermat number C) Mersenne number D) none of the above	
50)	Which of the following is not a Mersenne prime number? A) M_3 B) M_2 C) M_4 D) M_5	