ANSWER KEY FOR CLASS 10.

EX – 6 Factorisation

2.i) Since x+3 is a factor of f(x) by remainder theorem, x+3 = 0 or x= -3.

$F(x) = 2x^2 – 5x +4 = 2x(-3)^2 -5x(-3)+1 = 18+15+1 =34$ ans.

5. Since x-2 is a factor of f(x), by remainder theorem, x-2=0 or, x = 2.

$F(x) = 2x^3 +3x^2 –kx +5 =7$ or, $2x2^3+3x2^2-kx2+5 = 7$ or,16+ 12-2k+5=7 or, x=13.

8ii) Since x+3 is a factor of 2 polynomials,by remainder theorem, x+3=0 or x=-3

$f(x) = ax^3+3x^2-9 = a(-3)^3+3(-3)^2-9$....(1) also, $g(x)= 2x^3+4x+a = 2(-3)^3+4(-3)+a$ by the problem, -27a +18 = -66 +a or, 28a = 84 or, a = 3 ans.

16i) $f(x) = 2x^3+x^2-13x+6$ when x=1/-1/2 then f(x) $\neq$0 when x=2 f(x) = 0 therefore,by factor theorem , x-2 is a factor. Now,by simple division $2x^3+x^2-13x+6 \div x-2$ we get $2x^2+5x-3$. Again by factorisation we get (x+3)(2x-1). Ans.

22. Since ,x-2 is a factor of f(x),by factor theorem, x-2 = 0 or, x= 2

$f(x)= x^3+ax^2+bx -12= 0$ or,$2^3+a.2^2+b.2-12=0$ or,2a+b=2.....(1)

.Again, since x+3 is a factor, by factor theorem, x+3=0 or, x=-3.

$F(x)= (-3)^3+a(-3)^2+b(-3)-12=0$ or,3a-b=39.....(2). Solving, we get a=3,b=-4.

CHAPTER TEST

1. Since, 2x+1 is a factor,by factor theorem,2x+1=0 or,x=-1/2

$f(x)= 2x^3-3x^2+4x+7= 2(-1/2)^3-3(-1/2)^2+4(-1/2)+7 = 4$ ans.

3. Since, 2x-3 is a factor,by factor theorem,2x-3=0 or, x= 3/2

$f(x)= 6x^2+x+a =0$, or, $6(3/2)^2+(3/2)+a=0$ or, a= -15.

On simple division $6x^2+x-15 \div 2x-3$ we get (2x-3)(3x+5). Ans.

6ii) $f(x) = x^3 -19x -30$. putting x = 1/-1/2 f(x)$\neq$0 but when x=-2, f(x) =0.so, x+2 is a factor. By simple division $x^3-19x-30 \div x+2$ we get x^2-2x+5. again by factorising we get (x+3) (x-5). So, (x+2)(x+3)(x-5) are the facto

8. Since, x+3 is a factor, by factor theorem, x+3=0 or, x=-3.

$F(x) = x^3 +ax^2-bx +24 =0$ or, $(-3)^3+a(-3)^2-b(-3)+24=0$ or,3a+b=1.......(1) also,since, x-4 is a factor ,by factor theorem, x-4=0 or, x=4.

$F(x)=x^3+ax^2-bx+24=0$ or,$4^3+a.4^2-b.4+24 =0$ or,4a-b=-22....(2).

On solving a=-3,b=10 . Therefore, $f(x)= x^3-3x^2-10x+24$. Now,by simple dividing $x^3-3x^2-10x+24\div x-4$, we get x^2+x-6.again, by factorising we get (x+3)(x-2). Therefore, (x-4)(x+3)(x-2) are the factors.

10. Since 2x+1 is a factor,by factor theorem,2x+1=0 or,x=-1/2.putting x=-1/2 in two f(x) and solving we get p=-3,q=2. by factorising, x+2,x-3.