Deepak and Primes

This problem is based on Prime Sieve as constraints are large.
We will use Sieve of Eratosthenes which runs in O(nLogLogn) time.We also skip checking of even numbers except 2 which is prime.

```
/*input
8
1
10
100
1000
10000
100000
1000000
5000000
*/
#include <bits/stdc++.h>
using namespace std;

#define boost  ios_base::sync_with_stdio(false);
#define endl '\n'
#define mp make_pair
#define pb push_back
#define ppb pop_back
#define fi first
#define se second
#define ll long long
#define ull unsigned long long
#define pii pair<ll, ll>
#define f(i,a,b) for(ll i = (ll)(a); i <= (ll)(b); i++)
#define rf(i,a,b) for(ll i = (ll)(a); i >= (ll)(b); i--)
#define ms(a,b) memset((a),(b),sizeof(a))
#define max(a,b) ((a>b)?(a):(b))
#define min(a,b) ((a<b)?(a):(b))

#define abs(x) ((x<0)?(-(x)):(x))
#define MAX 100005
#define inf LLONG_MAX
#define MIN INT_MIN

//typedef
typedef pair<int, int> ii;
typedef vector<ii> vii;
typedef vector<vii> vvii;

int mod = 1e9 + 7 ;
ll gcd(ll a , ll b){return b==0?a:gcd(b,a%b);}
ll powmod(ll a,ll b) {ll res=1;if(a>=mod)a%=mod;for(;b;b>>=1)
{if(b&1)res=res*a;if(res>=mod)res%=mod;a=a*a;if(a>=mod)a%=mod;}return res;}
```

```
/*.....................................................................
.....................................................*/
bool v[100000005];
//ll sp[5000005];
vector<int>prime_vector;
void Sieve()
{
    for(ll i = 2; i < 100000005; i += 2)
       {
       //even numbers have smallest prime factor 2
        v[i]=true;
        //sp[i]=2;
       }
         prime_vector.pb(2);
    for (ll i = 3; i < 100000005; i += 2)
    {
        if (!v[i])
        {   prime_vector.pb(i);
            for (ll j = i; (j*i) < 100000005; j += 2)
            {
                if (!v[j*i])
                    v[j*i] = true;//sp[i*j]=i;
            }
        }
    }
}

int main()
{
   ios_base::sync_with_stdio(false);cin.tie(0);
   int t;cin>>t;
   int k;
   Sieve();
   while(t--)
   {
    cin>>k;
    k--;
    cout<<prime_vector[k]<<endl;
   }
   return 0;
}
```