1. Find outputs of the following code.

```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <pthread.h>

void *t_func(void *arg);
int var=0;
int t_id[]={1,2};
int main(){
    pthread_t t1;
    pthread_t t2;
    int a1[]={t_id[0],5};
    int a2[]={t_id[1],3};
    pthread_create(&t1,NULL,t_func,(void *)a1);
    pthread_join(t1,NULL);
    pthread_create(&t2,NULL,t_func,(void *)a2);
    pthread_join(t2,NULL);
    printf("Value of var after operations of threads: %d\n",var);

    return 0;
}
void *t_func(void *arg){
       int *x=arg;
       if(x[0]==1){
            printf("Entered in Thread :%d\n",x[0]);
            var+=x[1];
            printf("Value of var after the operation of Thread %d: %d\n",x[0],var);
            printf("Operation Done by Thread %d...\n",x[0]);
       }
       else{
            printf("Entered in Thread :%d\n",x[0]);
            var-=x[1];
            printf("Value of var after the operation of Thread %d: %d\n",x[0],var);
            printf("Operation Done by Thread %d...\n",x[0]);
       }

}
```

Entered in Thread: 1
V o var a o o thread 1: 5
Op. D by Thread 1

Entered in Thread: 2
V o var a o o thread 2: 2
Op. D by Thread 2

Value of var after oper. of th.: 2

2. Find outputs of the following code. **[Run this code in the PC multiple times and analyse the outputs]**

```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <pthread.h>
int t_id[]={1,2,3};
var=50;
void *t_func(int *v);
int main(){
      pthread_t t[3];
      for(int i=0;i<3;i++){
            pthread_create(&t[i],NULL,(void *)t_func,&t_id[i]);
            pthread_join(t[i],NULL);
      }
      printf("Final value of var: %d\n",var);
      return 0;
}
void *t_func(int *v){
    if(*v==0){
       printf("Entered in Thread %d...\n",*v);
       for(int i=0;i<3;i++){
              var+=5;
              printf("Thread %d modified value %d\n",*v,var);
       }
       printf("Modification done by Thread %d, value %d\n",*v,var);
    }
    else if(*v==1){
       printf("Entered in Thread %d...\n",*v);
       for(int i=0;i<3;i++){
              var-=4;
              printf("Thread %d modified value %d\n",*v,var);
       }
       printf("Modification done by Thread %d, value %d\n",*v,var);
    }
    else{
       printf("Entered in Thread %d...\n",*v);
       for(int i=0;i<3;i++){
              var*=2;
              printf("Thread %d modified value %d\n",*v,var);
       }
       printf("Modification done by Thread %d, value %d\n",*v,var);
    }
}
```

Entered in Thread 1
Thread 1 modified value 46
Thread 1 modified value 42
Thread 1 modified value 38
Modification done by Thread 1, value 38

Entered in Thread 2
Thread 2 modified value 76
Thread 2 modified value 152
Thread 2 modified value 304
Modification done by Thread 2, value 304

Entered in Thread 3
Thread 3 modified value 608
Thread 3 modified value 1216
Thread 3 modified value 2432
Modification done by Thread 3, value 2432

Final value of var: 2432

3. Find outputs of the following code. **[Run this code in the PC multiple times and analyse the outputs every time]**

```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <pthread.h>
int t_id[]={1,2,3};
var=50;
void *t_func(int *v);
int main(){
        pthread_t t[3];
        for(int i=0;i<3;i++){
            pthread_create(&t[i],NULL,(void *)t_func,&t_id[i]);
        }
        for(int i=0;i<3;i++){
            pthread_join(t[i],NULL);
        }
        printf("Final value of var: %d\n",var);
        return 0;
}
void *t_func(int *v){
    if(*v==0){
        printf("Entered in Thread %d...\n",*v);
        for(int i=0;i<3;i++){
                var+=5;
                printf("Thread %d modified value %d\n",*v,var);
        }
        printf("Modification done by Thread %d, value %d\n",*v,var);
    }
    else if(*v==1){
        printf("Entered in Thread %d...\n",*v);
        for(int i=0;i<3;i++){
                var-=4;
                printf("Thread %d modified value %d\n",*v,var);
        }
        printf("Modification done by Thread %d, value %d\n",*v,var);
    }
    else{
        printf("Entered in Thread %d...\n",*v);
        for(int i=0;i<3;i++){
                    var*=2;
                printf("Thread %d modified value %d\n",*v,var);
        }
        printf("Modification done by Thread %d, value %d\n",*v,var);
    }
}
```