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**SE(4a) | 19f-0916**

Operating System Lab

Threads

**QUESTION # 1**

**Cpp Code:**

**#include <iostream>**

**#include <pthread.h>**

**#include<unistd.h>**

**using namespace std;**

**//Question 1**

**int Global\_variable\_1=0;**

**int Global\_variable\_2=0;**

**void\* SumFun (void\* val)**

**{**

**++Global\_variable\_1;**

**Global\_variable\_2 = Global\_variable\_2 + Global\_variable\_1;**

**int \*threadid = (int \*)val;**

**cout<< "Running Thread ID : " << \*threadid << endl;**

**cout<< "1st Global Variable Value Becomes : " << Global\_variable\_1 << endl;**

**cout<< "2nd Global Variable Value Becomes : " << Global\_variable\_2 << endl;**

**};**

**int main()**

**{**

**pthread\_t thread;**

**for (int i = 0; i< 3; i++)**

**pthread\_create(&thread,NULL,\*SumFun,(void \*) &thread);**

**pthread\_exit(NULL);**

**return 0;**

**}**

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**QUESTION # 2**

**Cpp code:**

**#include <iostream>**

**#include <pthread.h>**

**#include<unistd.h>**

**using namespace std;**

**//Question 2**

**int count=0;**

**void\* SumFun (void\* val)**

**{**

**int \*threadid = (int \*)val;**

**count++;**

**cout<< "Running Thread ID : " << \*threadid <<" and Number is : "<< count << endl;**

**};**

**int main()**

**{**

**int val;**

**pthread\_t thread;**

**cout<<"Enter Number of Threads to Create : ";**

**cin >> val;**

**for (int i = 0; i< val; i++)**

**pthread\_create(&thread,NULL,\*SumFun,(void \*) &thread);**

**pthread\_exit(NULL);**

**return 0;**

**}**

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**QUESTION # 3**

**Cpp Code:**

**#include <iostream>**

**#include <pthread.h>**

**#include<unistd.h>**

**using namespace std;**

**//Question 3**

**int var1=2,var2=3;**

**void\* Sum (void\* val)**

**{**

**int \*threadid = (int \*)val;**

**cout<< "Running Thread ID : " << \*threadid <<" and Adding Numbers : "<< var1+var2 << endl;**

**};**

**void\* Sub (void\* val)**

**{**

**int \*threadid = (int \*)val;**

**cout<< "Running Thread ID : " << \*threadid <<" and Subtracting Numbers : "<< var1-var2 << endl;**

**};**

**void\* Mul (void\* val)**

**{**

**int \*threadid = (int \*)val;**

**cout<< "Running Thread ID : " << \*threadid <<" and Multiplying Numbers : "<< var1\*var2 << endl;**

**};**

**void\* Div (void\* val)**

**{**

**int \*threadid = (int \*)val;**

**cout<< "Running Thread ID : " << \*threadid <<" and Dividing Numbers : "<< var1/var2 << endl;**

**};**

**int main()**

**{**

**pthread\_t thread1;**

**pthread\_t thread2;**

**pthread\_t thread3;**

**pthread\_t thread4;**

**cout<<"Performing Arthematic Functions on Numbers :"<<var1<<" and "<<var2<<endl<<endl;**

**pthread\_create(&thread1,NULL,\*Sum,(void \*) &thread1);**

**pthread\_create(&thread2,NULL,\*Sub,(void \*) &thread2);**

**pthread\_create(&thread3,NULL,\*Mul,(void \*) &thread3);**

**pthread\_create(&thread4,NULL,\*Div,(void \*) &thread4);**

**pthread\_exit(NULL);**

**return 0;**

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**QUESTION # 4**

**Cpp Code:**

**#include <iostream>**

**#include <pthread.h>**

**#include<unistd.h>**

**using namespace std;**

**//Question 4**

**int count=0;**

**void\* Fun (void\* val)**

**{**

**int pid;**

**pid=getpid();**

**int \*threadid = (int \*)val;**

**count++;**

**cout<< "Running Thread ID : " << \*threadid <<" and Number is : "<< count <<" and Pid is :"<< pid << endl;**

**};**

**int main()**

**{**

**pthread\_t thread[4];**

**for (int i=0; i<4; i++)**

**pthread\_create(&thread[i],NULL,\*Fun,(void \*) &thread[i]);**

**pthread\_exit(NULL);**

**return 0;**

**}**

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