9 Illustrate the concept of inter-process communication using sharedmemory with a C program

A. Code:

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <sys/ipc.h>
#include <sys/shm.h>

#define SHM_SIZE 1024

int main() {
   key_t key = ftok("shmfile", 65); // Generate a unique key

   // Create or access the shared memory segment
   int shmid = shmget(key, SHM_SIZE, IPC_CREAT | 0666);
   if (shmid == -1) {
      perror("shmget");
      exit(1);
   }

   // Attach the shared memory segment to this process
   char *shmaddr = (char*)shmat(shmid, NULL, 0);
   if (shmaddr == (char*)-1) {
      perror("shmat");
      exit(1);
   }

   // Write data to shared memory
   strcpy(shmaddr, "Hello, Shared Memory!");

   // Detach shared memory
```

```
    shmdt(shmaddr);

    // Reattach the shared memory segment
    shmaddr = (char*)shmat(shmid, NULL, 0);

    // Read data from shared memory
    printf("Data read from shared memory: %s\n", shmaddr);

    // Detach shared memory again
    shmdt(shmaddr);

    // Remove the shared memory segment
    shmctl(shmid, IPC_RMID, NULL);

    return 0;
}
```

Output:

```
Data read from shared memory: Hello, Shared Memory!
```