Write a C perogram do simulate the concept of # include < Stdio. hz # include < Semaphore. h? Hinclard Spthread . Ly # define N 15 It define THINKING 2 + define HUNGRY 1 A define FATING O # define LEFT (phrum +4) % N Adefre RIGHT (Phone +1) %. N. int state [N]; X: ! Identity : int phil [N]= {0,1,2,3,42; Sem - J. muter: Valleyman ! Void text. (int phnin) if [State [phnum] = = HUNGRY E State [LEPT] ! - EATING Sg State [RIGHT] != EATING) [State [Annum] = FATING: 1/A/ Slee P(2). print [" Philosopha % d sales fork % d and % l'in phonon +1);

print [" philosopher % d is Eating In , phonon +1); Sem_port (& s Cphnum); 29

PAGE NO : DATE :
Void take fork (int ghnum)
Sem-bait (& muter);
State [phnim] = HUNGRY;
point l'philosopher % d is Hugry n' phrumt),
1 (D) mm i
Sem-post (5 mutrs);
Sem-wait (& S [phnum])
Sleep (1);
9 lee p. Co
Void put fork (int phnum)
Pord pur for the production
Son Wait (& mutes);
State Ephnum] = THINKING;
9/ -
print ("philosopher %od putting york %od and %od
down'n', phonon +1, (EFT+1, phonon +1);
perint ["philosopher %d is thinking In", phnum +1);
perint ["philosopher %d is thinking In" , Jhnum +1);
perint [philosopher %d in thinking In ghnum +1); test [LEFT];
perint ["philosopher %d is thinking In" , Jhnum +1);
rest (RIGHT); Lest (
perint [philosopher %d in thinking In ghnum +1); test [LEFT];
rest (RIGHT); Lest (
test (LEFT); test (RIGHT); Sem port (Smular); The state of the stat
rest (RIGHT); Lest (
rest (LEFT); Fest (RIGHT); Sem post (Emwler); Void Philosopher (Void num)
Fest (LEFT); Fest (RIGHT); Sem post (5 mudes); Void Philosopher (void num) Lande (1) 6
rest (LEFT); Lest (RIGHT); Sem post (Smules); Void Philosopher (Void num) Lest (1) {
rest (LEFT); test (RIGHT); Sem port (Smuka); Void "philosopher (void num) Lande () ? int i = num; Sleep ();
rest [LEFT]; test [RTGHT]; Sem post (smutas); Void Philosopher (void num) sucception (void num) steep (); dake - fork (::).
point ["philosopher god in thinky In anhum +1); test (LEFT); test (RIGHT); Void Philosopher (Void num) Lance (1) { int i = num; Sleep (1); dake fork (i); Sleep (o);
rest (LEFT); test (RIGHT); Sem port (Smuka); Void "philosopher (void num) Lande () ? int i = num; Sleep ();

int main () Philosopher Philosopher philosog her ù thinking 5 Philosopher 10 Philosopher phil do plos philosopher Jahry phylosephon Eatin

Enter the number of philosophers: 5

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Philosopher 1 is thinking
Philosopher 1 is eating
Philosopher 3 is thinking
Philosopher 3 is eating
Philosopher 5 is thinking
Philosopher 2 is thinking
Philosopher 4 is thinking
Philosopher 3 Finished eating
Philosopher 1 Finished eating
Philosopher 2 is eating
Philosopher 5 is eating
Philosopher 2 Finished eating
Philosopher 5 Finished eating
Philosopher 4 is eating
```