Instruction: Show complete rough work. No Calculator. No query.

1. Ready time of jobs are 84, 91 and 3427. Their service times are 4650, 4650, 350 respectively. Find waiting and finish time of each. Round robin time quantum 50.

2. A precedence graph has edges P →Q, P →R, R →T, Q →S, Q →T, S →U, T →U. Write smallest program using join. Write smallest expression for finish time of T and U. Example: K->B K->D B->I D->I   Finish(I)=k+i+max(b,d);   Finish(B)=k+b

a=2	K		Create c	B		goto f	c:D		f:join(a)	I

3. Write service interval of each job so that average wait is smallest. Total memory 100.

Job	Arrival	Memory	Service	Let swap out time is 5 and swap in time is 2.
P	0	70	80	Also write swap out and Swap in interval.
Q	10	70	60	Assume direct memory access.
R	12	20	3	

4. Buddy system: 12→156   21→165   40→104   60→124   65→197 Write smallest segment table. Example: In 1010110 2→42 11→27   0010→101010 1011→011011

5. Let virtual address 01101001 has physical address 11011001001. Let page fragmentation is 5. Find page size (all possible). Corresponding to each page size find program size (all possible).

6. Concurrency control: Show run time intervals in following. Write wait intervals also.
   Job A:(ready 7)(run 10)(P=12)(run 20)(Q=29)(run 40)
   Job B:(ready 10)(run 4)(P=17)(run 60)(Q=82)(run 30)
   Job C:(ready 53)(run 4)(Q=49)(run 50)

7. Let critical section duration of Job A and B be 300 and 500 respectively. F=5 by Job A is executed at t=289. F=7 by job B is executed at t=403. Condition is checked at t=327,337,347,…. and 492,502,512,… respectively. When will each job execute critical section? All possible answers. Time needed to execute P=0 and Q=0 is 30 each. Job A: P=1 F=5 while(Q=1) and (F=5) wait; CR; P=0;   Job B: Similar

8. RAID: Write time needed to access locations: 42, 96, 69, 92. Show method.
   Example: To access locations 78, 12, 54, 47, 15 time needed is 28, 12, 8, 43, 13 respectively. Method: 78(b28), 12(a12), 54(ac04), 47(a47), 15(bc15)

9. In TIUWIVPQHTWPQRTUMSKDABGFDZBCBA 5 frames write pages in memory in FIFO/LRU. Example: 2 frames FIFO:CA LRU:BA Write answer without method.

10. Let inode format be aaaaabbbccd. (A) Let inode:prrqp̌rpřqp̌r and blocks contents are p:qrp q:qqr r:prp. Write logical file. (B) Let a logical file be grdhjtuzkyytuzkyytuztuz. Write inode and block contents. Two blocks only.

11. Let groups be {d,u} {p,h,b,r} {k,y} b=29 d=43 h=45 k=67 p=36 r=42 u=47 y=87
    print(b):056329093(R→C)   print(y):056329287(R→C)   print(h) print(u) print(b)
    print(h) print(u) print(k)   Write reaming cache contents and data transfer.

12. Find work over time in FCFS/SSTF. 50,99,49,98,48,97,47,96,46,95,45,……….,67,17

13. Buffer size 5 H(wert) L(asd) H(sdh) L(pq) Now Disk has asdwertspqdh Do for size 3.