Time 2Hr **Operating System** MA41011/MA60004 Spring 2023

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

1. A page on RAM has nuvyzst n:0 uvyzst wrong. n:1 Disk=RAM n:2 first variable correct on RAM. n:2{1} 3:{2} 4:{3} 5:{1,2} 6:{1,3} 7:{2,3} 8:{1,2,3}
   Initial Disk P:346728 Q: 537946 R:213547 S:837492
   Initial RAM P:0296756 Q:0678293 R:0834562 S:0143789
   P:a,b,c Q:d,e,f R:g,h,i S:j,k,l print(d) makes Q:1537946 [537946 Disk→RAM]
   b=59 makes P:3295956 a=42 P:5425956 What does g=89; print(h); k=41; over do?

2. When job A..E are done. Example: P[896-1145] Q[0-896] R[896-1003] S[1145-1487]

Job	A	B	C	D	E
Given	G	Y	H,M	K	Z
Will need	K,Z	M	U,L	H	Y
Service Time	33	24	67	86	37

P	Q	R	S
W	I,J	N	T
I	V	J	W,N
249	896	107	342

3. Data compression block size 5: Complete0 is 00. Single one is 01<location in 2 bits>. Two one's 10<combined location in 4 bits>. More one's 11<block>
   101111 stands for single one at location 4. Hint:00011,10000 is coded as 101001,0100. Show coding of 00010,00001,00110,11001,

4. Let remaining service time of job P is 568. Let service time of Q is 421. Let swap out time is 42. Let swap in time is 35. When preemption is done find A) increase in waiting time of P B) decrease in waiting time of Q? See following example.

Job	Arrival	Service	Interval	Preemption
U	0	30	0-30	0-30
V	20	50	30-80	30-40,65-105
W	40	13	80-93	47-60

RST(V)=40 ST(W)=13
Swap out time 7 Swap in time 5
Increase in waiting of V=35-10=25
Decreasing in waiting of W=40-7=33

5. In following write missing numbers p, q, r, s. u, v Write name of scheme used.

Job	A	B	C	D	E	F		G
Memory needed	2000	229	879	303	1843	937	Job	276
Internal Fragmentation	42	124	0	134	p	r	B	u
External Fragmentation	0	0	2076	0	q	s	Over	v

6. Free space management in dynamic partitioning using best fit. Write contents of modified memory after each operation. A) Job U needs 5 memory B) Job V needs 2 memory C) Job Q which was allocated 47-49 is over. 99 is pointer to the first hole.

Address	08	25	42	55	67	80	99
Contents	25,9	55,3	67,5	80,6	8,8	nil,4	42,10
Free	00-08	23-25	38-42	50-55	60-67	77-80	89-98

7. Ready time of two jobs are 57 and 74 respectively. Their service times are 850 each. Find waiting in each. Write finish time also. Round robin time quantum 50.
   Example: RT(A):12 RT(B):27 ST(A):46 ST(B):38 Time quantum 20
   A:12-32 52-72 90-96 B:32-52 72-90 WT(A):20+18=38 WT(B):5+20=25

8. Directory entry for a file is k. Blocks are following. Write blocks when v is deleted.
   d:zqj- h:es-y k:umch y:gv-d Write all possible answers.

The end of Question Paper