

1.

ADD.D	F4,F6,F1;
MUL.D	F6,F4,F3;
ADD.D	F9,F4,F7;
MUL.D	F1,F3,F7;

1-cycle, Integer unit,
2-cycle, FP add unit,
3-cycle, FP multiply unit
10-cycle, FP divide unit

Hint:

		Instruction status							
Instructions	Issue	Read operands	Execution complete				Write result		
ADD.D F4,F6,F1;	1								
MUL.D F6,F4,F3;									
ADD.D F9,F4,F7;									
MUL.D F1,F3,F7;									
		Function unit status							
Name	Busy	Op	Fi	Fj	Fk	Qj	Qk	Rj	Rk
Integer									
Mult									
Add1	Yes	ADD.D	F4	F6	F1			Yes	Yes
Add2									
Divide									

Register Result Status											
	F0	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
FU	Add1										

Please show the tables for each and every clock for clocks 2, 3, 4 and 5.

At Clock Cycle 2:

Instructions	Instruction status			
	Issue	Read operands	Execution complete	Write result
ADD.D F4,F6,F1;	1	2		
MUL.D F6,F4,F3;	2			
ADD.D F9,F4,F7;				
MUL.D F1,F3,F7;				

[illegible]

Register Result Status											
	F0	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
FU	Add1					Mult					

At Clock Cycle 3:

	Instruction status			
Instructions	Issue	Read operands	Execution complete	Write result
ADD.D F4,F6,F1;	1	2		
MUL.D F6,F4,F3;	2			
ADD.D F9,F4,F7;	3			
MUL.D F1,F3,F7;				

[illegible]

Mult	Yes	MUL.D	F6	F4	F3	Add1	No	Yes
Add1	Yes	ADD.D	F4	F6	F1		No	No
Add2	Yes	ADD.D	F9	F4	F7	Add1	No	Yes
Divide								

Register Result Status											
	F0	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
FU	Add1					Mult			Add2		

At Clock Cycle 4:

Instruction status				
Instructions	Issue	Read operands	Execution complete	Write result
ADD.D F4,F6,F1;	1	2	4	
MUL.D F6,F4,F3;	2			
ADD.D F9,F4,F7;	3			
MUL.D F1,F3,F7;				

Function unit status									
Name	Busy	Op	Fi	Fj	Fk	Qj	Qk	Rj	Rk
Integer									
Mult	Yes	MUL.D	F6	F4	F3	Add1		No	Yes
Add1	Yes	ADD.D	F4	F6	F1			No	No
Add2	Yes	ADD.D	F9	F4	F7	Add1		No	Yes
Divide									

Register Result Status											
	F0	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
FU	Add1					Mult			Add2		

At Clock Cycle 5:

Instruction status				
Instructions	Issue	Read operands	Execution complete	Write result
ADD.D F4,F6,F1;	1	2	4	5
MUL.D F6,F4,F3;	2			
ADD.D F9,F4,F7;	3			
MUL.D F1,F3,F7;				

Function unit status									
Name	Busy	Op	Fi	Fj	Fk	Qj	Qk	Rj	Rk
Integer									
Mult	Yes	MUL.D	F6	F4	F3			Yes	Yes
Add1	No								
Add2	Yes	ADD.D	F9	F4	F7			Yes	Yes
Divide									

Register Result Status											
	F0	F1	F2	F3	F4	F5	F6	F7	F8	F9	F10
FU						Mult			Add2		