1. Given that a frame is formatted as follows:

Destination Hardware Address	Source Hardware Address	Frame Type	Frame Data
6 Bytes	6 Bytes	2 Bytes	46 - 1500 Bytes

And given that a datagram is formatted as follows:

Byte	0				1				2				3			
bit	0 1 2 3	4 5 6 7	8 9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
0	Version	Header Length	Type Of Service	Total Length
4	Identification			Flags	Fragment Offset
8	TTL		Type	Header Checksum
12	Source IP Address			
16	Destination IP Address			
Optional	IP Options (May Be Omitted)			Padding
20	IP Payload Data			

And given the following frame with an encapsulated datagram:

4F	E2	9D	17	E2	D5	A4	D4	9A	15	05	E9	08	00	45	80
00	72	89	62	7F	D6	63	85	44	CE	65	75	4F	7D	D0	4F
C3	52	FF	4C	E8	46	01	5B	30	57	0A	D4	DF	18	C8	F5
27	AE	5A	D1	BB	7F	E7	1A	51	5A	78	CC	0F	A1	85	5E
A1	7F	49	A2	11	21	4C	88	67	83	66	D9	E5	DE	3D	3A
41	32	A3	80	9F	F6	76	E0	51	C5	62	07	F7	23	FB	67
3C	97	83	87	BD	BF	BC	E2	66	57	38	84	13	03	83	0B
1A	AD	3E	1A	F1	C2	29	57	5A	ED	06	DD	0D	E5	46	B4

a. Find the destination hardware address.
b. Find the source hardware address.
c. What type of frame is this?
d. What is the Identification?
e. What Flag(s) are set in the IP header?
f. What is the fragment offset?
g. What is the TTL count?
h. What is the Header Checksum?
i. Find the source IP address.
j. What class is the source IP address?
k. What is the network ID in the source IP address?
l. What is the host ID in the source IP address?
m. Write the source IP address in dotted decimal notation.

n. Find the destination IP address.
o. What class is the destination IP address?
p. What is the network ID in the destination IP address?
q. What is the host ID in the destination IP address?
r. Write the destination IP address in dotted decimal notation.
s. If the IP header includes no options or padding, what are the first five bytes of the datagram data?
t. Can this message be delivered directly by the source to the destination, or will it require routers to handle the message. Explain.

2. Given that a frame is formatted as follows:

Destination Hardware Address	Source Hardware Address	Frame Type	Frame Data
6 Bytes	6 Bytes	2 Bytes	46 - 1500 Bytes

And given that a datagram is formatted as follows:

Byte	0								1								2								3							
bit	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
0	Version				Header Length				Type Of Service								Total Length															
4	Identification																Flags			Fragment Offset												
8	TTL								Type								Header Checksum															
12	Source IP Address																															
16	Destination IP Address																															
Optional	IP Options (May Be Omitted)																							Padding								
20	IP Payload Data																															

And given the following frame with an encapsulated datagram:

CD	A9	FD	2E	C6	E3	E8	BD	CA	86	33	BF	08	00	45	57
00	72	F4	52	67	EC	16	AF	43	CB	9C	45	1F	DC	C1	0C
8B	B6	8D	BC	03	41	B7	5C	29	C2	B9	0C	C8	2A	6F	15
7B	D3	78	AD	05	84	C9	BD	7A	CD	32	7A	9E	5B	F4	1E
93	22	72	68	56	50	74	F9	61	98	6B	91	3B	ED	7A	49
CC	93	2C	E8	9C	A0	76	F3	C9	5D	3D	83	0D	E6	0E	1E
BC	57	F2	A6	AF	E5	2E	47	F0	96	4E	67	BC	80	F1	C8
A5	A5	8D	89	50	D7	30	2A	94	F4	C8	78	BC	33	3A	A9

a. Find the destination hardware address.
b. Find the source hardware address.
c. What type of frame is this?
d. What is the Identification?
e. What Flag(s) are set in the IP header?
f. What is the fragment offset?
g. What is the TTL count?
h. What is the Header Checksum?
i. Find the source IP address.
j. What class is the source IP address?
k. What is the network ID in the source IP address?
l. What is the host ID in the source IP address?
m. Write the source IP address in dotted decimal notation.

n. Find the destination IP address.
o. What class is the destination IP address?
p. What is the network ID in the destination IP address?
q. What is the host ID in the destination IP address?
r. Write the destination IP address in dotted decimal notation.
s. If the IP header includes no options or padding, what are the first five bytes of the datagram data?
t. Can this message be delivered directly by the source to the destination, or will it require routers to handle the message. Explain.

3. Given that a frame is formatted as follows:

Destination Hardware Address	Source Hardware Address	Frame Type	Frame Data
6 Bytes	6 Bytes	2 Bytes	46 - 1500 Bytes

And given that a datagram is formatted as follows:

Byte	0				1				2				3			
bit	0 1 2 3	4 5 6 7	8 9 10 11	12 13 14 15	16 17 18 19 20 21 22 23			24 25 26 27 28 29 30 31								
0	Version	Header Length	Type Of Service		Total Length											
4	Identification				Flags		Fragment Offset									
8	TTL		Type		Header Checksum											
12	Source IP Address															
16	Destination IP Address															
Optional	IP Options (May Be Omitted)							Padding								
20	IP Payload Data															

And given the following frame with an encapsulated datagram:

C6	FA	DA	B9	88	97	D4	12	A1	E6	68	9B	08	00	45	B6
00	72	58	92	76	96	0E	4E	F3	30	CE	46	00	3B	56	A4
E6	F4	AC	BD	82	35	5E	E9	B0	5A	6F	7E	B7	93	1A	A7
CA	8A	F2	52	DD	55	0F	09	8D	DA	E0	25	E0	29	F6	BA
E2	4F	2B	6B	A9	88	0E	97	81	33	7A	F6	A1	8F	78	B2
F1	23	EE	C3	38	F2	2C	BC	3A	19	EF	58	BC	F8	B9	A6
CE	1B	F9	19	3B	39	95	05	E9	09	B6	9C	6B	63	10	35
B1	9D	7E	09	3D	49	37	06	4B	EC	3C	C3	C3	97	CF	B1

a. Find the destination hardware address.
b. Find the source hardware address.
c. What type of frame is this?
d. What is the Identification?
e. What Flag(s) are set in the IP header?
f. What is the fragment offset?
g. What is the TTL count?
h. What is the Header Checksum?
i. Find the source IP address.
j. What class is the source IP address?
k. What is the network ID in the source IP address?
l. What is the host ID in the source IP address?
m. Write the source IP address in dotted decimal notation.

n. Find the destination IP address.
o. What class is the destination IP address?
p. What is the network ID in the destination IP address?
q. What is the host ID in the destination IP address?
r. Write the destination IP address in dotted decimal notation.
s. If the IP header includes no options or padding, what are the first five bytes of the datagram data?
t. Can this message be delivered directly by the source to the destination, or will it require routers to handle the message. Explain.

4. Given that a frame is formatted as follows:

Destination Hardware Address	Source Hardware Address	Frame Type	Frame Data
6 Bytes	6 Bytes	2 Bytes	46 - 1500 Bytes

And given that a datagram is formatted as follows:

Byte	0				1				2				3			
bit	0 1 2 3	4 5 6 7	8 9 10 11	12 13 14 15	16 17 18 19	20 21 22 23	24 25 26 27	28 29 30 31
0	Version	Header Length	Type Of Service		Total Length			
4	Identification				Flags	Fragment Offset		
8	TTL		Type		Header Checksum			
12	Source IP Address							
16	Destination IP Address							
Optional	IP Options (May Be Omitted)						Padding	
20	IP Payload Data							

And given the following frame with an encapsulated datagram:

74	9A	4E	C3	1D	D0	25	A4	21	F3	8E	38	08	00	45	E5
00	72	9A	1A	3E	F7	F4	B0	5D	3B	C9	EC	09	E3	8D	56
73	52	02	F0	E5	25	44	E6	3A	5F	DA	61	AC	7C	C1	6E
AA	5A	70	F7	F0	DE	E2	0C	57	E5	36	69	08	9B	14	83
8F	1A	5B	3D	3A	6F	37	66	91	96	9A	9B	74	E9	2A	EE
76	2E	CB	5B	F8	F5	85	79	3D	A1	A4	B4	FC	AC	AA	1B
30	5A	CF	BB	07	C8	37	25	FB	D9	6F	67	CE	B6	D5	58
7F	D6	CD	BE	8F	2D	F8	50	D3	D1	74	C4	42	9C	70	C7

a. Find the destination hardware address.
b. Find the source hardware address.
c. What type of frame is this?
d. What is the Identification?
e. What Flag(s) are set in the IP header?
f. What is the fragment offset?
g. What is the TTL count?
h. What is the Header Checksum?
i. Find the source IP address.
j. What class is the source IP address?
k. What is the network ID in the source IP address?
l. What is the host ID in the source IP address?
m. Write the source IP address in dotted decimal notation.

n. Find the destination IP address.
o. What class is the destination IP address?
p. What is the network ID in the destination IP address?
q. What is the host ID in the destination IP address?
r. Write the destination IP address in dotted decimal notation.
s. If the IP header includes no options or padding, what are the first five bytes of the datagram data?
t. Can this message be delivered directly by the source to the destination, or will it require routers to handle the message. Explain.