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:

DA	BB	F3	3F	CB	58	02	4A	E2	DD	9A	A7	08	00	45	7C
00	72	B4	19	65	95	6B	0F	BD	B3	DB	E2	6F	F9	A3	5D
5D	C7	3A	C6	BF	83	D7	13	8F	7C	FD	0A	EF	98	0A	4D
7C	F4	BD	1D	E0	C3	51	43	25	64	F6	3A	DF	85	95	0E
A0	EC	0C	90	F3	01	71	F9	E9	B1	F7	FC	D5	BE	E0	66
37	D0	62	B3	1F	D9	75	DA	B7	71	E6	CD	52	1F	C8	94
E7	4F	C8	FA	03	F2	FB	7E	E9	BE	88	DA	DF	A6	B2	28
B1	30	28	E0	0F	34	A8	6D	F0	3F	42	AB	C2	75	93	82

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:

1D	6B	7A	5E	DE	8D	CF	45	07	70	FB	7E	08	00	45	AE
00	72	50	CC	67	2B	74	24	47	38	65	06	83	B5	DD	1B
B0	0A	B8	4E	1E	94	94	C7	4B	50	1B	28	67	82	F8	26
0E	8A	08	04	6A	10	58	64	71	88	D2	AB	C1	BD	F7	FA
1F	D4	52	E3	C5	D0	93	A8	E3	14	DA	C9	33	EF	E0	5A
30	64	47	D8	49	7D	D3	6C	22	2A	75	0F	9A	26	16	46
F9	69	EC	96	90	98	D1	44	A0	C3	DD	A7	33	76	78	58
D5	6B	D7	94	E2	8B	02	5B	8E	2F	4A	D5	AD	9C	45	AF

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:

EB	9A	A6	60	D2	1E	48	68	C2	66	82	A9	08	00	45	B1
00	72	1E	C8	67	69	C7	31	2D	66	67	E9	B2	5C	C7	C6
7B	8F	B1	2C	49	24	61	DE	70	FF	D3	81	D0	E4	E3	91
D5	9D	DD	0A	8A	7B	6F	C8	F9	09	D3	41	FB	97	0F	61
01	8E	27	AC	BE	81	87	0B	CB	E7	64	13	41	69	D6	F8
A3	8F	AA	6F	6C	99	17	D5	A2	25	9F	E7	89	C3	23	03
91	C9	ED	A0	88	89	C8	20	19	E3	82	9C	9D	A6	79	BE
C1	7F	34	46	D5	08	89	BA	BA	06	0A	3D	CF	DB	0B	98

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:

63	7B	1F	C2	9E	BB	8F	27	56	C2	0D	03	08	00	45	1D
00	72	F5	73	64	F7	CE	F9	84	F5	5F	C4	1B	CD	B6	62
7F	77	CD	6A	A2	A6	E9	EA	6D	34	A1	99	62	3C	48	F8
05	A2	2D	E1	2E	44	28	6C	93	83	27	4D	18	7B	C0	68
B8	05	09	60	58	87	45	E9	29	79	EC	60	8B	CC	70	52
33	3C	1E	3E	56	C7	B9	AE	29	A5	80	B2	0B	88	59	0F
F5	F8	C8	21	FF	BA	8A	CB	A3	67	C9	CC	88	E5	F0	B9
B8	95	61	3B	AF	5B	D2	24	73	5B	07	FE	CB	BA	80	44

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.