1.
(a)
First fit:
212KB in 500KB
417KB in 600KB
112KB in 288KB
426KB in wait

Best fit:

212KB in 300KB
417KB in 500KB
112KB in 200KB
426KB in 600KB

Worst fit:

212KB in 600KB
417KB in 500KB
112KB in 388KB
426KB in wait

(b) The best-fit algorithm is the most efficient because it was the only algorithm to meet all the memory requests.

2.
30000: page number = 30000/1024 = 29, and offset = 30000 % 1024 = 304
256: page number =256/1024 = 0, and offset 256 % 1024 = 256
16385: page number 16385 / 1024 = 16, and offset = 16385 % 1024 = 1

3.
(a) Total bits for logical address=⌈log2(32)⌉+⌈log2(1024)⌉ =5+10=5+10 = 15 bits = 15 bits
(b) total bits for physical address=⌈log2(16)⌉+⌈log2(1024)⌉ =4+10=4+10 = 14 bits = 14 bits

4.

(a) 2300 + 10 = 2310

(b) 1327 + 400 = 1727

(d) 1952+ 90 = 2064 Here the physical address is illegal because as given in the table that the length of this segment is 96 which is less than 112.

5. Best fit: the program will be placed in the 14KB segment in best fit

OS
6
In use
17
In use
25
In use
14
In use
19

Frist fit: the program will be placed in the 17KB segment, the first it can fit.

OS
6
In use
17
In use
25
In use
14
In use
19

Worst fit: the program will be placed in the 25KB segment in worst case

OS
6
In use
17
In use
25
In use
14
In use
19

6.
(a)

Page Nubmer	Contents
0	a b c d
1	e f g h
2	I j k l
3	m n o p
4	q r s t
5	u v - -

Page Number	Contents
7	a b c d

26	e f g h
52	l j k l
20	m n o p
55	q r s t
6	u v - -

(b)

Page Number	Frame Number
0	7
1	26
2	52
3	20
4	55
5	6

(c)

The physical address of m: (4*20) + 0 = 80

The physical address of d: (4*7) + 3 = 31
The physical address of v: (4*6) + 1 = 25
The physical address of r: (4*55) + 1 = 221

(d)
No External Fragmentation
Internal fragmentation = 2.