Question 2 [16 marks]:

In rolling a pair of dice, a possible outcome can be abstracted by the numbers facing up, say, by 24, by 53, and so forth:

(a) List all the possible outcomes using this abstraction. (6 marks)

['1,1', '1,2', '1,3', '1,4', '1,5', '1,6',
'2,1', '2,2', '2,3', '2,4', '2,5', '2,6',
'3,1', '3,2', '3,3', '3,4', '3,5', '3,6',
'4,1', '4,2', '4,3', '4,4', '4,5', '4,6',
'5,1', '5,2', '5,3', '5,4', '5,5', '5,6',
'6,1', '6,2', '6,3', '6,4', '6,5', '6,6']

(b) Use brute force to count the possible outcomes with the numbers facing up have a sum of 5. (5 mark)

Blue Dice	Grey Dice	Sum	Blue Dice	Grey Dice	Sum
1	1	2	1	4	**5**
2	1	3	2	4	6
3	1	4	3	4	7
4	1	**5**	4	4	8
5	1	6	5	4	9
6	1	7	6	4	10
1	2	3	1	5	6
2	2	4	2	5	7
3	2	**5**	3	5	8
4	2	6	4	5	9
5	2	7	5	5	10
6	2	8	6	5	11
1	3	4	1	6	7
2	3	**5**	2	6	8
3	3	6	3	6	9
4	3	7	4	6	10
5	3	8	5	6	11
6	3	9	6	6	12

There is 4 sums of 5 using this brute force table above

(c) Use brute force to count the possible outcomes with the numbers facing up have a sum divisible by 5.

Blue Dice	Grey Dice	Sum	Sum % 5	Blue Dice	Grey Dice	Sum	Sum % 5
1	1	2	2	1	4	**5**	**0**
2	1	3	3	2	4	6	1
3	1	4	4	3	4	7	2
4	1	**5**	**0**	4	4	8	3
5	1	6	1	5	4	9	4
6	1	7	2	6	4	10	**0**
1	2	3	3	1	5	6	1
2	2	4	4	2	5	7	2
3	2	**5**	**0**	3	5	8	3
4	2	6	1	4	5	9	4
5	2	7	2	5	5	10	**0**
6	2	8	3	6	5	11	1
1	3	4	4	1	6	7	2
2	3	**5**	**0**	2	6	8	3
3	3	6	1	3	6	9	4
4	3	7	2	4	6	10	**0**
5	3	8	3	5	6	11	1
6	3	9	4	6	6	12	2