MD. Rasel hossain
ID: 163432521, 43rd, cse

(1) (a)

$$z_n = (a z_{n-1} + c) \% m$$

$$u_n = z_n / m$$

where,

$z_n =$ is the seed of element

$a \ = $ is the multiplier

$c =$ is the increment

$m \ = $ is the module

two types

$m = 2^k$

$m \neq 2^k$

(1)(b) Given that,

$$m = 32, \; a = 17, \; c = 11, \; z = 10$$

Calculate value for u_6

we know,

$$z_n = (a z_{n-1} + c) \% m$$

$$u_n = z_n / m$$

$$z_1 = (a z_0 + c) \div m = (17 \times 10 + 11) \% 32 = 21$$

$$u_1 = \frac{21}{32} = 0.65625$$

$$z_2 = (17 \times 21 + 11) \% 32 = 16$$

$$u_2 = \frac{16}{32} = 0.5$$

$$z_3 = (17 \times 16 + 11) \% 32 = 27$$

$$u_3 = \frac{27}{32} = 0.84375$$

$$z_4 = (17 \times 27 + 11) \% 32 = 22$$

$$u_4 = \frac{22}{32} = 0.68775$$

$$z_5 = (17 \times 22 + 11) \% 32 = 1$$

$$u_5 = \frac{1}{32} = 32$$

$z_6 = (17 \times 32 + 11)\% \ 32 = 11$

$u_6 = \frac{11}{32} = 0.34375$

(1) (c) Ans.

① for

	1	2	3	4	5	6
①	(1.1)	(1.2)	(1.3)	(1.4)	(1.5)	(1.6)
2	(2.1)	(2.2)	(2.3)	(2.4)	(2.5)	(2.6)
3	(3.1)	(3.2)	(3.3)	(3.4)	(3.5)	(3.6)
4	(4.1)	(4.2)	(4.3)	(4.4)	(4.5)	(4.6)
5	(5.1)	(5.2)	(5.3)	(5.4)	(5.5)	(5.6)
6	(6.1)	(6.2)	(6.3)	(6.4)	(6.5)	(6.6)

① for sum of 3

$= \frac{2}{36} \neq \frac{1}{19} = 0.055$

for sum of 5

$$= \frac{4}{36} = \frac{1}{9} = 0.111!$$

(ii) 2 dice in double!

$$\frac{6}{36} = \frac{1}{6} = 0.1666.$$

Answer to the Question no-2