

# Assignment - 9

Q1.

|    | key       | location                   | probes                 |
|----|-----------|----------------------------|------------------------|
| 0  |           |                            |                        |
| 1  | 29        |                            |                        |
| 2  |           | 45                         | [ $2(45)+3 \mod 15$ ]  |
| 3  | 45        |                            | = 3                    |
| 4  | 150       |                            |                        |
| 5  | 16        | 29                         | [ $2(29)+3 \mod 15$ ]  |
| 6  |           |                            | = 1                    |
| 7  | 120       |                            |                        |
| 8  | 25        | 16                         | [ $2(16)+3 \mod 15$ ]  |
| 9  | 10        |                            | = 5                    |
| 10 |           | 50                         | [ $2(50)+3 \mod 15$ ]  |
| 11 |           |                            | = 13                   |
| 12 |           |                            |                        |
| 13 | 50        | 25                         | [ $2(25)+3 \mod 15$ ]  |
| 14 |           |                            | = 8                    |
|    |           | 150                        | [ $2(150)+3 \mod 15$ ] |
|    |           |                            | = 3                    |
|    | collision |                            |                        |
|    |           | $\therefore (j + i^2) = j$ |                        |
|    |           | $= 3 + 1^2$                | 2                      |
|    |           | $= 4$                      |                        |

| key | location | probe |
|-----|----------|-------|
|-----|----------|-------|

$$120 \quad [2(120) + 3] \% 15 \\ = 3$$

collision

$$\therefore j + i^2 \\ = 3 + 2^2 \\ = 7$$

collision

$$\therefore j + i^2 \\ = 3 + 2^2 \\ = 7$$

$$8 \quad [2(8) + 3] \% 15 \\ = 4$$

collision

$$\therefore j + i^2 \\ = 4 + 1^2 \\ = 5$$

collision

$$\therefore j + i^2 \\ = 4 + 2^2 \\ = 8$$

collision

$$\therefore j + i^2 \\ = 4 + 3^2 \\ = 13$$

collision

$$\therefore j + i^2 \\ = 4 + 16 \\ = 20$$

X  
20BCP304D

key at location 1 and probe

$$10 [2(10) + 3] \% 15 \quad |$$

$$22 \% 15 = 7$$

collision

$$\therefore j + i^2 \quad |$$

$$j = m \% d = 8 + 1^2 \% 2 \quad \text{at } (8 \\ = 9 \% 2)$$

20BCP304D

Q2.

|       |          |                                  |                                 |           |
|-------|----------|----------------------------------|---------------------------------|-----------|
| Q2    | $m = 24$ | $h_1(k) = (2k+1) \text{ mod } m$ | $h_2(k) = (3+k) \text{ mod } m$ | 20BCP304D |
| Index |          | Key                              | ( $E + 1$ ) probe               |           |
| 5     |          | 122                              | 1                               |           |
| 1     |          | 24                               | 1 position                      |           |
| 7     |          | 99                               | 1                               |           |
| 16    |          | 36                               | 2                               |           |
| 9     |          | 100                              | 1 position                      |           |
| 10    |          | 50                               | 2                               |           |
| 4     |          | 144                              | 2                               |           |
| 13    |          | 120                              | 5                               | position  |
| 23    |          | 88                               | 3                               |           |
| 21    |          | 10                               | 1                               |           |
|       |          |                                  |                                 | 20BCP304D |

$$1) h_2(k) \% m \text{ for } 36, j = 1 \\ = 15$$

$$\therefore j = (15 + 1) \% 24 \\ = 16$$

$$2) \text{ for } 50 \quad h_2(k) \% m = 5 \\ j = 50$$

$$\therefore j = (5 + 5) \% 24 \\ = 10$$

$$3) \text{ for } 120, j = 1 \quad h_2(k) \% m = 3$$

$$\therefore j = (1 + 3) \% 24 \\ = 4$$

collision

$$= [1 + (3 \times 2)] \% 24 \\ = 7$$

collision

$$= [1 + (3 \times 3)] \% 24 \\ = 10$$

collision

$$= [1 + (3 \times 4)] \% 24 \\ = 13$$

$$3) \text{ for } 144, j = 1 \quad h_2(k) \% m = 3$$

$$\therefore j = (1 + 3) \% 24 \\ = 4$$

DATE \_\_\_\_\_  
PAGE No. \_\_\_\_\_

5]

for 88 , j = 9

$$h_2(k) \% m = 19$$

$$\therefore j = (9 + 19) \% 24$$

collision

$$= [9 + (19 \times 2)] \% 24$$

$$= 23$$

0

1

24

2

3

4

154

5

122

6

7

199

8

9

100

10

50

11

12

120

13

,

14

36

15

16

17

18

19

20

21

10

22

88