**PROB. NO.**

**DECODE**

- $m_1 = 0$
- $m_{i+b} = 1$
- $m_{i+1} = 0$

**E**
- $a_{i+b} = 1$
- $a_{i+1} = 6$
- $b_{i+b} = 12$
- $b_{i+1} = 1$

**F**
- $a_{i+b} = 1$
- $a_{i+1} = 6$
- $b_{i+b} = 12$
- $b_{i+1} = 1$

**C**
- $a_{i+b} = 1$
- $a_{i+1} = 6$
- $b_{i+b} = 12$
- $b_{i+1} = 1$

**D**
- $a_{i+b} = 1$
- $a_{i+1} = 6$
- $b_{i+b} = 12$
- $b_{i+1} = 1$

**C++ Analysis**

$cc$ used as max when $b = -ve$ and its magnitude is more $i.e. -128$

Then $cc$ needed to combine $A, B, C, 0, 0, status = 4$

$G, H, I = 3$

$E, F, status = 128 + 2 + 1$

Max. $cc$ needed = 264

Now for Avg. no. of $cc$'s we take $b = 4$ let no

For any value of $b$ we need to execute $A, B, C, 0, 0$ once.

and $E, F$ as many times as value of $b$.

Now for value of $b$ ranging from 1 to 4 we need

$5 \times 7 + 2 = 35 + 2 = 37$

when $b = 0$ then $5 cc$

Now for any $-ve$ $b$ we need to execute $A, B, C, 0, 0$ once

and $E, F$ as many time as value of $b$.

$cc$'s needed for all values of $b$ $1 - 16$ we need

$8 \times 8 + 8 \times 2 = 64 + 16 = 80$

Total $cc$'s needed to execute for all 16 possible

values of $b$ ranging from -8 to +7 we need

$232 cc$

Avg. no. of $cc$'s needed = $\frac{232}{16} = \frac{116}{16} = 15$