Que:-Suppose a man is going to a place by driving a car along the straight road. The velocity of the car at a time interval is given by the following table.

Time(min)	0	2	4	6	8	10	12
Velocity(km/hr)	0	10	16	18	22	25	26

(A)Using C-programming of Newton Forward interpolation, what will be the velocity of the car at the time 3.2 minutes?

Ans:-

Newton forward

```
#include <stdio.h>
int main() {
int i, n, j;
float x[100], y[100], d[100][100], xn, u, yp, denm, num;
scanf("%d", &n);
printf("enter the value of x & y :");
for (i = 0; i <= n; i++) {
scanf("%f%f", &x[i], &y[i]);
}
printf("enter the value of xn: ");
scanf("%f", &xn);
int h = x[1] - x[0];
for (i = 0; i < n; i++) {
d[i][1] = y[i + 1] - y[i];
}
for (j = 2; j <= n; j++) {
for (i = 0; i <= n - j; i++) {
d[i][j] = d[i + 1][j - 1] - d[i][j - 1];
} }
u = (xn - x[0]) / h;
yp = y[0];
num = 1;
denm = 1;
for (int k = 1; k <= n; k++) {
num *= u - k + 1;
```

```
denm *= k;
yp += (num / denm) * d[0][k];
}
printf("%f", yp);
return 0;}
```

Output

```
6
enter the value of x & y :0 0
2 10
4 16
6 18
8 22
10 25
12 26
enter the value of xn: 3.2
14.53409
```
