

## Q2. (Dry Run / Trace)

**You start with an empty ER list.**

**Operations .**

### **Step1.InsertAtEnd(101)**

- Since the list is empty head becomes both head and tail.
- $\text{Null} \leftarrow [101] \rightarrow \text{Null}$
- prev of 101 is null
- next of 101 is null

### **Step2.InsertAtEnd(102)**

- Add 102 at the end
- 101 next  $\rightarrow$  102
- 102 prev  $\rightarrow$  101
- DLL
- $\text{Null} \leftarrow [101] \leftrightarrow [102] \rightarrow \text{Null}$
- Head = 101
- Tail = 102

### **Step3.InsertAtBeginning(200)(critical patient)**

- Add 105 at the Beginning
- 200 next->101
- 101 prev->200
- Head will update to 200
- DLL
- Null <-[200]<->[101]<->[102]->Null
- Head =200
- Tail=102

### **Step4.InsertAtPosition(150.2)**

- Insert 150 105 at position 2
- 200 next->150
- 150 prev->200
- 150 next->101
- 101 prev->150
- 2<sup>nd</sup> position will update to 150
- DLL
- Null <-[200]<->[150]<->[101]<->[102]->Null
- Head =200
- Tail=102

### **Step5. deleteFromBeginning()**

- Delet head(200)
- New head is (150)
- 150 prev->null
- DLL
- Null <-[150]<->[101]<->[102]->Null
- Head =150
- Tail=102

### **Step6. insertAtEnd(300)**

- Add 300 at the End
- 102 next->300
- 300 prev->102
- DLL
- Null <-[150]<->[101]<->[102]->[300]<->Null
- Head =150
- Tail=102

### **Final Answers :**

#### **After step 6 :**

#### **1.What is the patientID at the head?**

- Answer :150

**2.What is the patientID at the tail?**

- **Answer :300**

**3. Write the list from head → tail (forward traversal).**

- **Answer :150 – 101 – 102 - 300**

**4.Write the list from tail → head (backward traversal).**

- **Answer :300 – 102 – 101 - 300**

