(a)

Method	Input variable
public BoundedQueue(int capacity);	int capacity
public void enQueue(Object X);	Object X
public Object deQueue();	state
public boolean isEmpty();	state
public boolean isFull();	state

(b)

Method	Input variable	Exception	CH ID	characteristics
public BoundedQueue(int capacity);	int capacity	IllegalArgumentException	C1	Capacity > 0
public void enQueue(Object X);	Object X	NullPointerException IllegalStateException	C2 C3	Add object full
public Object deQueue();	state	IllegalStateException	C4	empty
public boolean isEmpty();	state		C2	empty
public boolean isFull();	state		C3	full

(c)

CH ID	characteristics	Partition	Base Block
C1	Initialize queue	True , False	Initialize success
C2	Add object	True , False	Not full
C3	Full	True , False	True
C4	empty	True , False	True

(d)

CH ID	Partition	Block value
C1	True	Capacity > 0
	False	Capacity <0
C2	True	Not full
	False	Full
C3	True	full
	False	Not full
C4	True	Empty
	False	Not empty

(e)

Method	characteristics	Test	oracles
public BoundedQueue(int capacity);	C1	True	Queue capacity > 0
		False	IllegalArgumentException
public boolean isEmpty();	C1,C4	TT	Return true
		TF	Return false
public boolean isFull();	C1,C3	TT	Return true
		TF	Return false
public Object deQueue();	C1,C4	TT	IllegalStateException
		TF	Return 0
public void enQueue(Object X);	C1,C2,C3	TTT	IllegalStateException
		TTF	size++
		TFT	NullPointerException