1) **Infix to postfix:-**

Infix Expression : $A*(B*C+D*E)+F$:

S·No	Current token	Operator Stack	Post fix String
1.	A		A
2.	*	*	A
3.	(	*(	A
4.	B	*(	AB
5.	*	*(*	AB
6.	C	*(*	ABC
7.	+	*(+	ABC*
8.	D	*(+	ABC*D
9.	*	*(+*	ABC*DE
10.	E	*(+*	ABC*DE
11.	)	*	ABC*DE*+
12.	+	+	ABC*DE*+*
13.	F	+	ABC*DE*+*F
14.			ABC*DE*+*F+

Postfix Expression is :- $ABC*DE*+*F+$

2) Infix Expression : $A * B \wedge c + D$

S.No	Current token	Operator Stack	Postfix String
1.	A		A
2.	*	*	A
3.	B	*	AB
4.	A	*A	AB
5.	C	*A	ABC
6.	+	+	ABC↑*
7.	D	+	ABC^*D
8.		+	ABC^*D+

Postfix Expression : ABC ^ * D +

3) Post fix to Infix:

Postfix Expression : $AB-DE+F*/$

S.No	Reading of Post fix	Stack top	Expression
1.	A	A	A
2.	B	B	B A
3.	$-$	A$-$B	A$-$B
4.	D	D	D A$-$B
5.	E	E	E D A$-$B
6.	$+$	D+E	D+E A$-$B
7.	F	F	F D+E A$-$B
8.	$*$	$((D+E)*F)$	$(D+E)*F$ A$-$B
9.	$/$	$(A-B)/((D+E*F))$	

Infix Expression : $(A-B)/((D+E)*F))$

4) Postfix conversion : abc * de-/+

S.No	Symbol	Stack
1.	a	a
2.	b	ab
3.	c	abc
4.	*	a(b*c)
5.	d	a(b*c)d
6.	e	a(b*c)de
7.	-	a(b*c)(d-e)
8.	/	a((b*c)/(d-e))
9.	+	(a+((b*c)/(d-e)))

Infix conversion : (a+ ((b*c)/(d-e)))

5) Balanced Symbols:

$$((a+b)*(c-d))$$

S.No	symbol	Stack	Action Taken	Expression so far
1.	(	(	Push '('	(
2.	(	((	Push '('	((
3.	a	((	Append 'a'	((a
4.	+	((	Append '+'	((a+
5.	b	((	Append 'b'	((a+b
6.	)	(	Pop '('	((a+b
7.	*	(*	Push '*'	((a+b)*
8.	(	(*(	Push '('	((a+b)*(
9.	(	(*(	Append 'c'	((a+b)*(c
10.	-	(*(	Append '_'	((a+b)*(c-
11.	d	(*(	Append 'd'	((a+b)*(c-d)
12.	)	(*	Pop '('	((a+b)*(c-d)
13.	)		Pop '('	((a+b)*(c-d))

It is valid for 'Balanced Symbol.'

6) i). $[\{(a+b)*c\}-d]$

S.NO	Symbol	Stack	Action taken	Expression so far
1.	(	[(]	Push `('	(
2.	a	[(]	Append `a'	(a
3.	+	[(,+]	Push `+'	(a+
4.	b	[(,+]	Append `b'	(a+b
5.	)	[(,+]	POP `('	(a+b)
6.	*	[(,+,*]	Push `*'	(a+b)*
7.	c	[(,*]	Append `c'	(a+b)*c
8.	)	[(]	POP `c'	(a+b)*c
9.	–	[(,-]	Push `–'	(a+b)*c
10.	d	[(,-]	Append `d'	(a+b)*c-d
11.	End	∅)	POP remaining operators	(a+b)*c-d

It is valid for "Balanced Symbol"