1) Infix to postfix:-

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

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

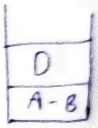
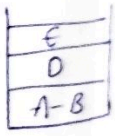
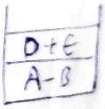
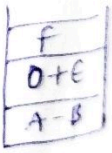
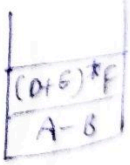
2) Infix Expression : A * B ^ C + D

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	
2.	B	B	
3.	-	A-B	
4.	D	D	
5.	E	E	
6.	+	D+E	
7.	F	F	
8.	*	((D+E)*F)	
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 '('	((a+b)*((
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 '('	(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"