Ans (3) (a).

Rule 1 ⇒ S → NP VP

Rule 2 ⇒ NP → they

Rule 3 ⇒ VP → VBP NP

Rule 4 ⇒ VBP → are

Rule 5 ⇒ NP → VBG NNS

Rule 6 ⇒ VBG → hunting

Rule 7 ⇒ NNS → dogs

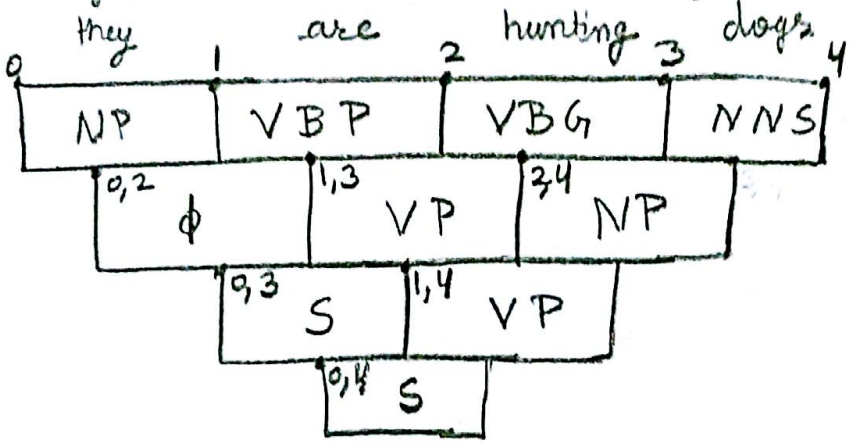
Rule 8 ⇒ VP → VBP VBG

Rule 9 ⇒ VP → VP NNS

→ Rule number 1, 3, 5, 8 and 9 satisfy the $A \rightarrow BC$ condition
Here A, B & C are non-terminals.

→ Rule number 2, 4, 6 & 7 satisfy the $A \rightarrow w$ condition
Here w is a terminal & A is a non-terminal.
So this grammer is in Chomsky Normal Form.

(b)



0,1 NP → they

1,2 VBP → are

2,3 VBG → hunting

3,4 NNS → dogs

0,2 ϕ → NP VBP ⇒ (Rule doesn't exist)

1,3 VP → VBP VBG

2,4 NP → VBG NNS

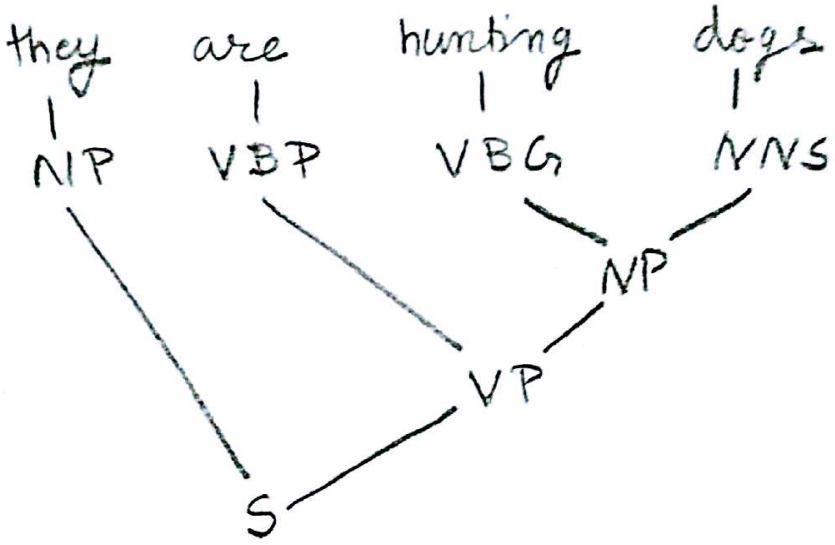
0,3 S → NP VP

1,4 VP → VBP NP
VP → VP NNS

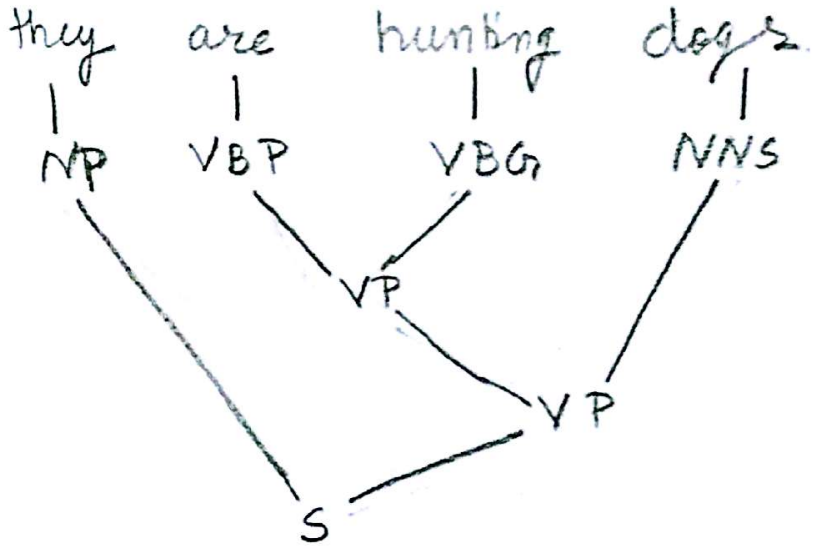
0,4 S → NP VP

Parse Trees →

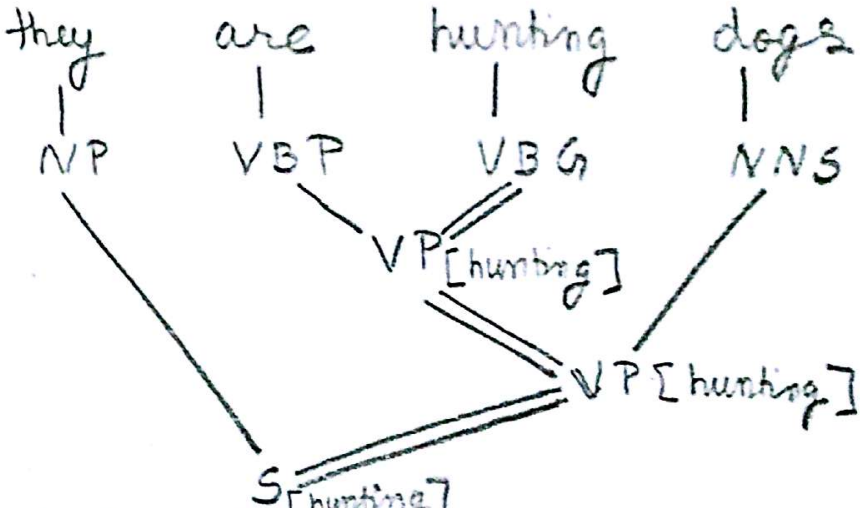
1.



2.



(c)



(S (NP they) (VP (VP (VBP are) (VBG hunting)) (NNS dogs)))