Exercise 11C

Question 3:

In cyclic quadrilateral ABCD, AB ∥ DC and∠BAD = 100°
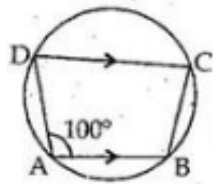
(i)   ∠BCD + ∠BAD = 180°
⇒   ∠BCD + 100° = 180°

⇒   ∠BCD = 180° − 100° = 80°
(ii)   Also,   ∠ADC = ∠BCD = 80°
 ∴   ∠ADC = 80°
(iii)   ∠ABC = ∠BAD = 100°
 ∴   ∠ABC = 100°

Question 4:

Take a point D on the major arc CA and join AD and DC
 ∴   ∠2 = 2∠1
[Angle subtended by an arc is twice the angle subtended by it
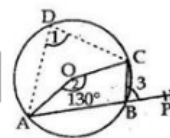on the circumference in the alternate segment.
 ∴   130° = 2∠1
⇒   ∠1 = 65°   ....(i)

      ∠PBC = ∠1
[∵ exterior angle of a cyclic quadrilateral interior opposite angle]
 ∴   ∠PBC = 65°

Question 5:

ABCD is a cyclic quadrilateral

∴   ∠ABC + ∠ADC = 180°

⇒   92° + ∠ADC = 180°

⇒   ∠ADC = 180° − 92° = 88°
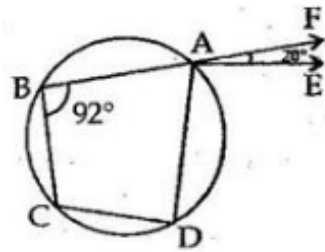
Also,   AE ∥ CD

∴   ∠EAD = ∠ADC = 88°

∴   ∠BCD = ∠DAF

[∵ exterior angle of a cyclic quadrilateral = int.opp.angle]

∴   ∠BCD = ∠EAD + ∠EAF

  = 88° + 20°   [∵ ∠FAE = 20°(given)]

  = 108°

∴   ∠BCD = 108°

********** END *********