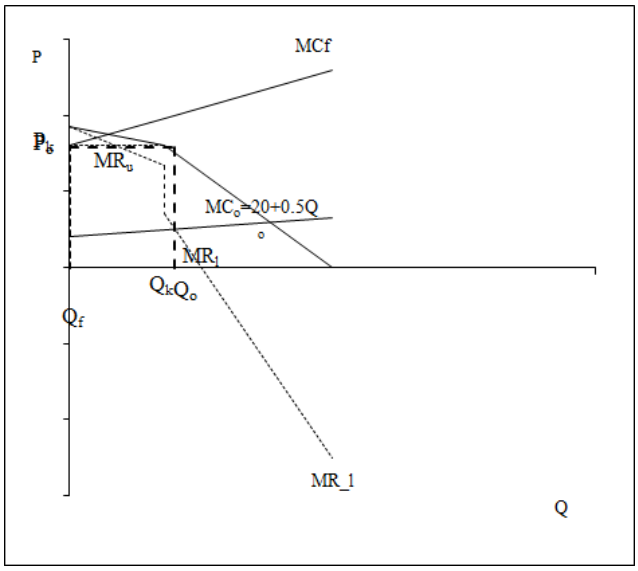
40. Incorrect. The answer is false not true. Above the kink, OPEC's demand (Qo) is world demand (Qw) minus the supply of the fringe (Qf) represented by the inverse marginal cost of the fringe. Qo = Qw - Qf = 25 – 0.2P - (-40+0.5P) = 65 – 0.7P. Then inverse OPEC demand is P = 92.857 - 1.429Qo and MR = 92.857 - 2.858Qo. Setting OPEC's marginal revenue equal to marginal cost 92.857 - 2.858Qo = 10 + 0.5Qo. Solving yields Qo = 21.697. Then P = 92.857 - 1.429*21.697 = 21.697. We need to check whether this production is to the left of the kink. The kink is at a price where the fringe produces nothing or where P = 80 + 2*0 = 80. World demand at a price of 80 is Qw = 25 – 0.2*80 = 9. Since Qo = 21.697 is greater than 9, we are not to the left of the kink. So now check to the right of the kink, where the fringe is out of the market and OPEC faces world demand. Set OPEC's marginal revenue from world demand (125-10Q) equal to OPEC's marginal cost (20+0.5Qo). Solving yield Qo=10. Since Qo is to the right of the kink, this is the solution. At this quantity world price is 125-5*10=75. The price is too low and the fringe produces nothing. OPECs profits are:

$$P * Qo - \int_{o}^{Qo} MCo = 75 * 10 - \int_{0}^{10} (20 - 0.5Qo)dQo = 525$$