assuming total no of relevant documents in collection is (25).

1. Relevant
2. Relevant
3. NOT-Relevant
4. Relevant
5. Relevant
6. Not-Relevant
7. Relevant
8. Relevant
9. Relevant
10. Not-Relevant
11. Not-Relevant
12. Relevant
13. Not-Relevant
14. Not-Relevant
15. Relevant
16. Not-Relevant

$TP = 9$

$FN = 16$

$FP = 7$

a)

$$\text{Recall} = \frac{TP}{TP + FP}$$

$$= \frac{9}{9+7} = \frac{9}{16}$$

$$\boxed{\text{Recall} = 0.56}$$

$$\text{Precision} = \frac{TP}{TP + FN}$$

$$= \frac{9}{9+16} = \frac{9}{25}$$

$$\boxed{\text{Precision} = 0.36}$$

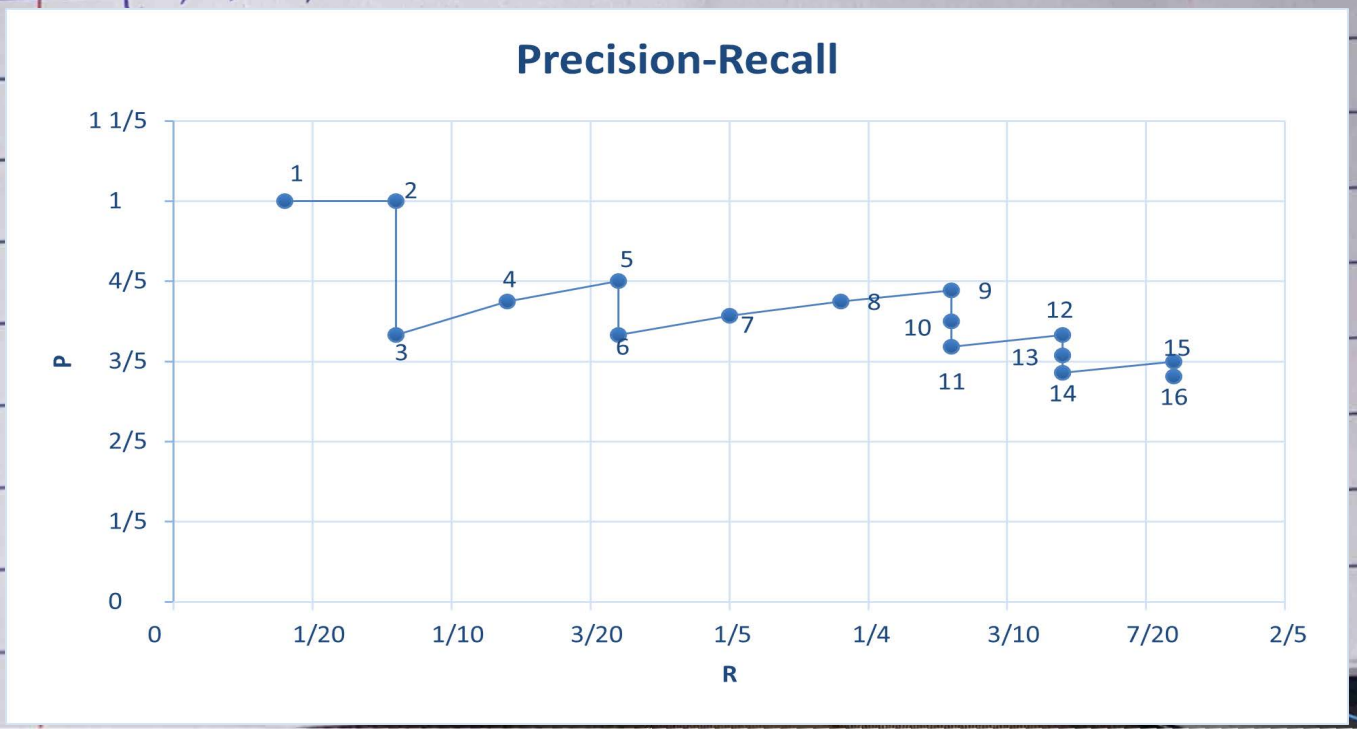
$$\text{f-measure} = \frac{2PR}{P+R}$$

$$= \frac{2 \times 0.36 \times 0.56}{0.36 + 0.56}$$

$$= \frac{0.4032}{0.92} = 0.438$$

$$\boxed{\text{fmeas} = 0.438}$$

Set 1 {R}	$R_1 = 1/25$	$P_1 = 1/1$
Set 2 {R, R}	$R_2 = 2/25$	$P_2 = 2/2$
Set 3 {R, R, NR}	$R_3 = 2/25$	$P_3 = 2/3$
Set 4 {R, R, NR, R}	$R_4 = 3/25$	$P_4 = 3/4$
Set 5 {R, R, NR, R, R}	$R_5 = 4/25$	$P_5 = 4/5$
Set 6 {R, R, NR, R, R, NR}	$R_6 = 4/25$	$P_6 = 4/6$
Set 7 {R, R, NR, R, R, NR, R}	$R_7 = 5/25$	$P_7 = 5/7$
Set 8 {R, R, NR, R, R, NR, R, R}	$R_8 = 6/25$	$P_8 = 6/8$
Set 9 {R, R, NR, R, R, NR, R, R, R}	$R_9 = 7/25$	$P_9 = 7/9$
Set 10 {R, R, NR, R, R, NR, R, R, R, NR}	$R_{10} = 7/25$	$P_{10} = 7/10$
Set 11 {R, R, NR, R, R, NR, R, R, R, NR, NR}	$R_{11} = 7/25$	$P_{11} = 7/11$
Set 12 {R, R, NR, R, R, NR, R, R, R, NR, NR, R}	$R_{12} = 8/25$	$P_{12} = 8/12$
Set 13 {R, R, NR, R, R, NR, R, R, R, NR, NR, R, NR}	$R_{13} = 8/25$	$P_{13} = 8/13$
Set 14 {R, R, NR, R, R, NR, R, R, R, NR, NR, R, NR, NR}	$R_{14} = 8/25$	$P_{14} = 8/14$
Set 15 {R, R, NR, R, R, NR, R, R, R, NR, NR, R, NR, NR, R}	$R_{15} = 9/25$	$P_{15} = 9/15$
Set 16 {R, R, NR, R, R, NR, R, R, R, NR, NR, R, NR, NR, R, NR}	$R_{16} = 9/25$	$P_{16} = 9/16$



Interpolated precision Recall values

$0 < r \leq R_3 = 2/25 \Rightarrow Intprec(r) = 1$

$R_3 < r \leq R_6 = 4/25 \Rightarrow Intprec(r) = 4/5$

$R_6 < r \leq R_{11} = 7/25 \Rightarrow Intprec(r) = 7/9$

$R_{11} < r \leq R_{14} = 8/25 \Rightarrow Intprec(r) = 8/12$

$R_{14} < r \leq R_{16} = 9/25 \Rightarrow Intprec(r) = 9/15$