**Benchmark Output**

Query 1:

what similarity laws must be obeyed when constructing aeroelastic models of heated high speed aircraft

|  |  |  |  |
| --- | --- | --- | --- |
|  | Relevant | Non-Relevant | Total |
| Retrieved | 9 | 31 | 40 |
| Not Retrieved | 20 | 1340 | 1360 |
| Total | 29 | 1371 | 1400 |

P=9/40=0.225

R=9/29=0.31

For 10 hits:

Average precision= ((1 + 1 +1 + 1 + 0.833 + 0.75 + 0.78) / 7 )

= **5.7**

Query 4:

can a criterion be developed to show empirically the validity of flow solutions for chemically reacting gas mixtures based on the simplifying assumption of instantaneous local chemical equilibrium .

|  |  |  |  |
| --- | --- | --- | --- |
|  | Relevant | Non-Relevant | Total |
| Retrieved | 3 | 37 | 40 |
| Not Retrieved | 0 | 1360 | 1360 |
| Total | 3 | 1367 | 1400 |

P=3/40=0.075

R=3/3=1

For 10 hits:

Average precision= ((0.17+0.25)/2)

= 0.33

Query 3:

what problems of heat conduction in composite slabs have been solved so far.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Relevant | Non-Relevant | Total |
| Retrieved | 8 | 32 | 40 |
| Not Retrieved | 1 | 1359 | 1360 |
| Total | 9 | 1383 | 1400 |

P=8/40=0.2

R=0.88

For 10 hits:

**Average precision= ((1 + 1 +1 + 1 + 1) / 5 )**

**= 1.0**

Query 5:

what chemical kinetic system is applicable to hypersonic aerodynamic problems .

|  |  |  |  |
| --- | --- | --- | --- |
|  | Relevant | Non-Relevant | Total |
| Retrieved | 5 | 35 | 40 |
| Not Retrieved | 0 | 1360 | 1360 |
| Total | 5 | 1361 | 1400 |

P=5/40=0.125

R=5/5=1

For 10 hits:

**Average precision= ((0.1) / 1 )**

**= 0.1**

Query 6:

what theoretical and experimental guides do we have as to turbulent couette flow behaviour .

|  |  |  |  |
| --- | --- | --- | --- |
|  | Relevant | Non-Relevant | Total |
| Retrieved | 2 | 38 | 40 |
| Not Retrieved | 3 | 1357 | 1360 |
| Total | 5 | 1384 | 1400 |

P=2/40=0.05

R=2/5=0.4

For 10 hits:

**Average precision= ((1+1) / 2 )**

**= 1**

**Mean of Average Precision= (5.7+0.33+1.0+0.1+1.0)/5**

**=1.62**