Name of the Student:_____
Max. Marks : 16 Marks **Time : 16 Minutes**

Mark Schemes

Q1.

(a) (i) $PV = NkT$ **(1)**

223×10^5 Pa **(1)**

2

(ii) pV = const or repeat calculation from (i) **(1)**

3.5×10^{-3} m^3 **(1)**

2

(iii) kinetic energy = 3/2 kT **(1)**

$5.9(0) \times 10^{-21}$ J **(1)**

2

(b) (i) volume increase **(1)**
time between collisions increases **(1)**
speed constant as temp constant **(1)**
rate of change of momentum decreases **(1)**

max 3

(ii) volume smaller in cylinder **(1)**

molecules occupy significantly greater proportion of the volume **(1)**

molecules closer so intermolecular forces greater **(1)**

3

(c) internal energy stays the same **(1)**

gas does work in expanding so W is negative **(1)**

gas must be heated to make U positive **(1)**

U and W equal and opposite **(1)**

4

[16]

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