

Answer on Question #75678-Physics Other

Which has maximum internal energy at 290K? Why

- (a) neon gas
- (b) nitrogen gas
- (c) ozone gas
- (d) equal

Solution

$$v_{rms} = \sqrt{\frac{3RT}{M}}$$

$$M_{neon} < M_{nitrogen} < M_{ozone}$$

Thus,

$$v_{neon} > v_{nitrogen} > v_{ozone}$$

So,

$$KE_{neon} > KE_{nitrogen} > KE_{ozone}$$

Therefore,

$$U_{neon} > U_{nitrogen} > U_{ozone}$$

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