ENGLAND GCSE PHYSICS AQA HIGHER · UNIT 3 · 25 QUESTIONS

Particle Model of Matter — Practice Test

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

1 **A swimming pool is filled with water. What is the density of water?**

- A about 1000 kilograms per cubic metre
- B about 100 kilograms per cubic metre, roughly
- C about 10 kilograms per cubic metre
- D about 1 kilogram per cubic metre

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2 **A thermometer shows a patient's temperature is 39 degrees Celsius. Is this above or below normal body temperature?**

- A below normal
- B impossible to tell
- C exactly normal
- D above normal

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3 **A cup of coffee is hot. How is energy transferred to the air?**

- A by conduction and convection
- B by radiation only, from the surface
- C by condensation on the cold cup
- D by evaporation only, from the top

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4 **Glass marbles in a tray are used as a model for particles in a solid. What do the marbles show?**

- A particles vibrate in fixed positions
- B particles flow past each other easily
- C particles move freely through space
- D particles are far apart from each other

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5 **A hot air balloon rises because the air inside it is less dense than the air outside. What happens to the density of air when it is heated?**

- A it stays the same
- B it increases
- C it decreases
- D it becomes zero

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6 **An ice cream cone melts. What is the melting point of the ice cream?**

- A around minus 20 degrees Celsius
- B around 100 degrees Celsius
- C around 37 degrees Celsius
- D around 0 degrees Celsius

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7 **A 5 kg mass of ice melts. The specific latent heat of fusion of ice is 400 J/kg. How much energy is needed?**

- A 4000 J
- B 2100 J
- C 2000 J
- D 1000 J

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8 **Why are the results of the specific heat capacity practical not exact?**

- A the block gains mass as it heats
- B the heater makes extra energy
- C the thermometer adds energy
- D energy escapes to the room

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9 **How much energy is needed to heat 5 kg of a substance with a specific heat capacity of 2100 J per kg per degree Celsius by 10 degrees Celsius?**

- A 10500 J
- B 105000 J
- C 210000 J
- D 52500 J

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10 **A gas is compressed into half its volume at constant temperature. What happens to the pressure?**

- A it falls to zero
- B it halves
- C it stays the same
- D it doubles

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11 **How much energy is needed to change 1 kg of a substance from liquid to gas, if the specific latent heat is 2260000 J per kg?**

- A 2260001 J
- B 4520000 J
- C 1130000 J
- D 2260000 J

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12 **A material has a density of 8 g per cubic centimetre. What is the mass of 25 cubic centimetres of it?**

- A 33 g
- B 400 g
- C 200 g
- D 100 g

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13 **An object has a mass of 50 g and a volume of 10 cubic centimetres. What is its density?**

- A 5 g/cm³
- B 10 g/cm³
- C 2.5 g/cm³
- D 60 g/cm³

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14 **A block has a mass of 1000 g and a volume of 100 cubic centimetres. What is its density?**

- A 10 g/cm³
- B 5 g/cm³
- C 20 g/cm³
- D 13 g/cm³

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15 **Which change of state releases energy to the surroundings?**

A subliming, which takes energy in

B boiling, which takes energy in

C melting, which takes energy in

D condensing

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16 **A 4 kg mass of ice melts. The specific latent heat of fusion of ice is 100 J/kg. How much energy is needed?**

A 500 J

B 200 J

C 400 J

D 800 J

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17 **How much energy is needed to heat 4 kg of a substance with a specific heat capacity of 2100 J per kg per degree Celsius by 20 degrees Celsius?**

- A 168000 J
- B 336000 J
- C 8400 J
- D 84000 J

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18 **What happens to internal energy when a substance is heated?**

- A it decreases
- B it becomes zero
- C it stays the same
- D it increases

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19 **Why does heating a gas in a sealed container raise the pressure?**

A the container gets smaller

B the particles stop moving

C they hit the walls harder

D the particles get bigger

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20 **How much energy is needed to change 3 kg of a substance from liquid to gas, if the specific latent heat is 2260000 J per kg?**

A 6780000 J

B 13560000 J

C 2260003 J

D 3390000 J

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21 **What happens to gas pressure when the volume falls at fixed temperature?**

A it increases

B it stays the same

C it decreases

D it becomes zero

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22 **A material has a density of 4 g per cubic centimetre. What is the mass of 10 cubic centimetres of it?**

A 80 g

B 20 g

C 40 g

D 14 g

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23 **An object has a mass of 50 g and a volume of 25 cubic centimetres. What is its density?**

- A 75 g/cm³
- B 1 g/cm³
- C 2 g/cm³
- D 4 g/cm³

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24 **A block has a mass of 500 g and a volume of 500 cubic centimetres. What is its density?**

- A 0.5 g/cm³
- B 2 g/cm³
- C 1 g/cm³
- D 4 g/cm³

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25

Why does a change of state need energy even though the temperature stays the same?

A the particles need to slow down

B energy is destroyed in the change

C the temperature is wrong

D energy is needed to break bonds

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ANSWER KEY

1.	A	**10.**	D	**19.**	C
2.	D	**11.**	D	**20.**	A
3.	A	**12.**	C	**21.**	A
4.	A	**13.**	A	**22.**	C
5.	C	**14.**	A	**23.**	C
6.	D	**15.**	D	**24.**	C
7.	C	**16.**	C	**25.**	D
8.	D	**17.**	A		
9.	B	**18.**	D		

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