





**Section C: Extended Numerical Questions (30 marks)**

**Question 13**

a) (1 mark)

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b) (2 marks)

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c) (1 mark)

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d) (2 marks)

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e) (3 marks)

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f) (4 marks)

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g) (2 marks)

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**Question 14**

a) (2 marks)

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f) (1 mark)

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**END OF THE ANSWER BOOKLET**

## Useful Equations

The following useful equations may be unfamiliar to some students:

$$\rho = \frac{m}{V} \quad \text{density} = \text{mass} \div \text{volume}$$

$$\Delta p = \rho \times g \times \Delta h \quad \text{pressure due to a column of fluid} = \text{density of fluid} \times \text{gravitational field strength} \times \text{height of column}$$

$$\Delta E = m \times L \quad \text{thermal energy for a change of state} = \text{mass} \times \text{specific latent heat}$$

$$\Delta E = m \times c \times \Delta\theta \quad \text{change in thermal energy} = \text{mass} \times \text{specific heat capacity} \times \text{change in temperature}$$

## The following constants should be used

$$g = 9.81 \text{ N/kg} \quad \text{gravitational field strength on Earth}$$