

**INTENSIVE MATHEMATICS (PBM1035)**  
**Session December 2017**  
**MODEL EXAM PAPER (QUESTION 5) (SET 2)**

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Instructions

- Answer ALL questions. Write your answers in the spaces provided.
- Show your working. You may use a non-programmable scientific calculator.

Question 1

Simplify the following indices without using calculator.

(a)

$$(32p^{-5}q^{-10})^{-\frac{2}{5}}$$

(b)

$$(p^{2n})^{\frac{1}{2}} \div (p^{-6})^{\frac{1}{3}n} \times (p^{4n})^{\frac{1}{4}}$$

(c)

$$5^{x+5} \times 25^{2x-1} \div 125^{2-x}$$

Question 2

Solve the index without using calculator.

(a)

$$27^{1-x} = 9^{2x}$$

(b)

$$25^{1-3x} = 5 \times 125^x$$

(c)

$$16 \times 4^{2x-3} = 32^{2-x}$$

Question 3

Evaluate the following without a calculator.

(a)

$$32^{\frac{1}{5}} \div 125^{\frac{1}{3}}$$

(b)

$$\left(\frac{27}{125}\right)^{-\frac{2}{3}}$$