Mark schemes

Q1.

$$\frac{640}{4} = \frac{V_p}{1.75}$$

1

$$V_p = \frac{640 \times 1.75}{4}$$

1

$V_p = 280$ (V)

1

$280 \times I_p = 336$

allow their calculated
$V_p \times I_p = 336$

1

$I_p = 1.2$ (A)

allow an answer that is consistent with their calculated value of V_p

1

or

$336 = I_s \times 1.75$ (1)

$$I_s = \frac{336}{1.75} \quad (1)$$

$I_s = 192$ (A) (1)

$$I_p = 192 \times \frac{4}{640} \quad (1)$$

allow

$$I_p = \text{their calculated } I_s \times \frac{4}{640}$$

$I_p = 1.2$ (A) (1)

allow an answer that is consistent with their calculated value of I_s
*an answer of 1.2 (A) scores **5** marks*

[5]

Q2.

3 (A)

*allow **1** mark for correct substitution, ie*

*18 × 2 = 12 × I_s scores **1** mark*

2

[2]

Q3.

(b) (i) 20

*allow **1** mark for correct substitution, ie* $\frac{230}{V_s} = \frac{575}{50}$

or $\frac{V_s}{230} = \frac{50}{575}$

2

(ii) 0.3

or

correct calculation using $230 \times I_p$ = their (b)(i) × 3.45

*allow **1** mark for correct substitution, ie*

$230 \times I_p = 20 \times 3.45$

allow ecf from (b)(i) for 20

OR

substitution into this equation $\frac{I_p}{I_s} = \frac{N_s}{N_p}$

2

[4]