- 1.
- (i)  $36^{\frac{1}{2}} \leftarrow \text{Square root}$ (ii)  $3^{-2} \leftarrow \text{Square and } f \cap P$
- (Total 2 marks)

- 2. Write down the value of
  - (a)  $7^0 \leftarrow \text{anything to the power}$ of zero is 1 **(1)**
  - (b) 4-1 < F!P

**(1)** (Total 2 marks)

(a) Simplify  $2^0$ 3.

**(1)** 

(b) Simplify  $5^{-1}$ 

(Total 2 marks)

(a) Write down the value of  $2^{-1}$ 4.

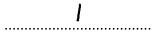
**(1)** 

(b) Write down the value of  $64^{\frac{1}{2}}$ 

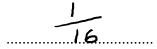
**(1)** (Total 2 marks)

5.	Write	down	the	value	of
~.	,,,,,,,			,	0.

(i) 5°



(ii) 4<sup>-2</sup>



(iii)  $100^{\frac{1}{2}}$ 

10	•••••	
	(Total 3 n	narks)

- **6.** (a) Write down the value of
  - (i) 9°



(ii)  $169^{\frac{1}{2}}$ 

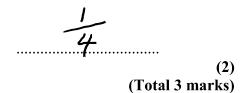


(b) Work out  $64^{\frac{2}{3}}$  cube roof and 59 uare

(2) (Total 4 marks)

7. (a) Find the value of  $36^{\frac{1}{2}}$ 

(b) Find the value of  $8^{-\frac{2}{3}}$   $\leftarrow$  cube rook  $\sim$  Square  $\sim$  Square



8.	Work	Out
0.	WOIK	out

- (i) 4<sup>0</sup>
- (ii)  $4^{-2}$
- (iii)  $16^{\frac{3}{2}}$

- 16
- 64 (Total 3 marks)

- (a)  $25^{\frac{1}{2}}$
- (b)  $9^0$

- \_\_\_\_\_5
- (1) (Total 2 marks)

- (i) 3<sup>-2</sup>
- (ii)  $36^{\frac{1}{2}}$
- (iii)  $27^{\frac{2}{3}}$
- $(iv) \quad \left(\frac{16}{81}\right)^{-\frac{3}{4}}$

- <u>|</u> 9
- 6
- 9
- <u>27</u> 8

- 11. (a) Find the value of
  - (i) 64°

1

(ii)  $64^{\frac{1}{2}}$ 

8

(iii)  $64^{-\frac{2}{3}}$ 

16

**(4)** 

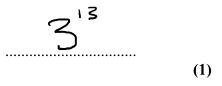
(b)  $3 \times \sqrt{27} = 3^n$  Find the value of n.

 $3^{1} \times 3^{\frac{3}{2}} = 3^{\frac{5}{2}}$ 

 $n = \frac{5}{2}$  or 2.5

(2) (Total 6 marks)

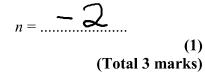
12. (a) Work out  $3^6 \div 3^{-7} = 3^{15}$ 



(b) Write down the value of  $36^{\frac{1}{2}}$ 



(c)  $3^n = \frac{1}{9}$ Find the value of n.



**13.** (a) Simplify

(i) 
$$(3x^2y)^3$$

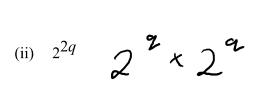
$$27x^6y^3$$

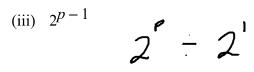
(ii)  $(2t^{-3})^{-2}$ 

$$\frac{1}{24}t^6$$

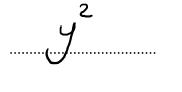
14. 
$$x = 2^p, y = 2^q$$

- (a) Express in terms of x and/or y,
  - (i)  $2^{p+q}$ 2 x 22









$$\frac{2}{2}$$

**(3)** 

$$xy = 32$$

and

$$2xy^2 = 32$$

Find the value of p and the value of q.

$$x = 2$$

$$y = 2^{2}$$

$$xy = 32$$

$$2^{2} \times 2^{2} = 2^{5}$$

$$2^{2} \times 2^{4} = 2^{5}$$

$$2^{2} \times 2^{4} = 2^{5}$$

$$2^{4} \times 2^{5} = 2^{5}$$

$$2^{4} \times 2^{5} = 2^{5}$$

$$P+q=5$$
 $P+2q=4$ 
 $q=-1$ 
 $p=6$ 

$$2y = 32$$

$$2xy^{2} = 32$$

$$2^{n} \times 2^{n} = 2^{5}$$

$$p = \frac{6}{q}$$

$$q = \frac{1}{1}$$
(Total 5 marks)

**16.** (a) Write down the value of  $8^{\frac{1}{3}}$ 



 $8\sqrt{8}$  be written in the form  $8^k$ 

(b) Find the value of k.

$$k = \frac{3}{2}...$$
 (1)

 $8\sqrt{8}$  can also be expressed in the form  $m\sqrt{2}$  where m is a positive integer.

(c) Express  $8\sqrt{8}$  in the form  $m\sqrt{2}$   $= 2\sqrt{2}$   $8 (2\sqrt{2})$ 

(d) Rationalise the denominator of  $\frac{1}{8\sqrt{8}}$ 

Give your answer in the form  $\frac{\sqrt{2}}{p}$  where p is a positive integer.