

GCSE QUESTIONS

Q1. NON-CALCULATOR

(a) Work out 2^3

.....
 (Total for question = 1 mark)

Q2. NON-CALCULATOR

(a) Simplify $(p^2)^5$

.....
 (1)

(b) Simplify $12x^7y^3 \div 6x^3y$

.....
 (2)
 (Total for question = 3 marks)

Q3. NON-CALCULATOR

(a) Write $\frac{3^5 \times 3^4}{3^2}$ as a power of 3

.....
 (2)

(b) Write down the value of 12^0

.....
 (1)

(c) Write down the value of 3^{-2}

.....
 (1)
 (Total for question = 4 marks)

Q4. NON-CALCULATOR

Write down the value of 2^{-3}

.....
 (Total for question = 1 mark)

Q5. NON-CALCULATOR

(a) Write down the value of $100^{\frac{1}{2}}$

.....
 (1)

(b) Find the value of $125^{\frac{2}{3}}$

.....
 (2)
 (Total for question = 3 marks)

Q6. NON-CALCULATOR

$$\frac{3^7 \times 3^{-2}}{3^3}$$

Work out the value of

.....
 (Total for question = 2 marks)

Q7. NON-CALCULATOR

Find the value of $64^{-\frac{2}{3}}$

.....
 (Total for question = 1 mark)

Q8. NON-CALCULATOR

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

.....
 (1)

(b) Write down the value of 23^0

.....
 (1)

(c) Work out the value of $27^{-\frac{2}{3}}$

.....
 (2)
 (Total for question = 4 marks)

Q9. NON-CALCULATOR

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

.....
 (1)

(b) Find the value of $\left(\frac{8}{125}\right)^{\frac{2}{3}}$

.....
 (2)
 (Total for question = 3 marks)

Q10. NON-CALCULATOR

Work out the value of $\left(\frac{16}{81}\right)^{\frac{3}{4}}$

.....
 (Total for question = 2 marks)

Q11. NON-CALCULATOR

(a) Find the value of $81^{-\frac{1}{2}}$

.....
 (2)

(b) Find the value of $\left(\frac{64}{125}\right)^{\frac{2}{3}}$

.....
 (2)
 (Total for question = 4 marks)

Q12. NON-CALCULATOR

(a) Find the value of $\sqrt[3]{8 \times 10^6}$

.....
 (1)

(b) Find the value of $144^{\frac{1}{2}} \times 64^{\frac{1}{3}}$

.....
 (2)

(c) Solve $3^{2x} = \frac{1}{81}$

x =
 (2)
 (Total for question = 5 marks)

Q13. NON-CALCULATOR

(a) Find the value of $\sqrt[3]{27 \times 3 \times 10^8}$

.....
(2)

(b) Find the value of $\left(\frac{216}{1000}\right)^{\frac{2}{3}}$

.....
(2)

(Total for question = 4 marks)

Q14. NON-CALCULATOR

Given that $9^{-\frac{1}{2}} = 27^{\frac{1}{4}} \div 3^{x+1}$
find the exact value of x.

x =
(Total for question = 3 marks)

Q15. CALCULATOR ALLOWED

(a) Simplify $y \times y \times y$

.....
(1)

(c) Simplify fully $\frac{e \times e \times e \times f}{e \times e \times f \times f}$

.....
(2)
(Total for question = 3 marks)

Q16. CALCULATOR ALLOWED

(a) Simplify $4y \times 2y$

.....
(Total for question = 1 marks)

Q17. CALCULATOR ALLOWED

Simplify $a^2 \times a^3$

.....
(Total for question is 1 mark)

Q18. CALCULATOR ALLOWED

Simplify $(m^3)^2$

.....
(Total for question is 1 marks)

Q19. CALCULATOR ALLOWED

Simplify $3y^2 \times 4y^3$

.....
(Total for question = 1 mark)

Q20. CALCULATOR ALLOWED

(a) Simplify $m^3 \times m^4$

.....
(1)

(b) Simplify $(5np^3)^3$

.....
(2)

(c) Simplify $\frac{32q^9r^4}{4q^3r}$

.....
(2)
(Total for question = 5 marks)

Q21. CALCULATOR ALLOWED

Simplify $3m^2r \times 4m^3r^6$

.....
(Total for question = 2 marks)

Q22. CALCULATOR ALLOWED

Work out the value of 3^5

.....
(Total for question = 1 mark)

Q23. CALCULATOR ALLOWED

Find the reciprocal of 2.5

.....
(Total for question is 1 mark)

Q24. CALCULATOR ALLOWED

$\frac{y^4 \times y^n}{y^2} = y^{-3}$

Find the value of n .

.....
(Total for question = 2 marks)

Q25. CALCULATOR ALLOWED

Simplify $5u^2w^4 \times 7uw^3$

.....
(Total for question = 2 marks)

Q26. CALCULATOR ALLOWED

Given that $3^{-n} = 0.2$

find the value of $(3^4)^n$

.....
(Total for question = 2 marks)

Q27. CALCULATOR ALLOWED

$$p^3 \times p^x = p^9$$

(a) Find the value of x .

$x = \dots\dots\dots$

(1)

$$(7^2)^y = 7^{10}$$

(b) Find the value of y .

$y = \dots\dots\dots$

(1)

$100^a \times 1000^b$ can be written in the form 10^w

(c) Show that $w = 2a + 3b$

(2)

(Total for question = 4 marks)

Q28. CALCULATOR ALLOWED

Given that $3^{-n} = 0.2$

find the value of $(3^4)^n$

$\dots\dots\dots$

(Total for question = 2 marks)

Q29. CALCULATOR ALLOWED

$$16^{1/5} \times 2^x = 8^{3/4}$$

Work out the exact value of x .

$\dots\dots\dots$

(Total for question = 3 marks)