1. Common Logarithms.

1. The product of a and $\sqrt[3]{b}$ is 31.59. Given that logarithm of a is 2.6182. Find using logarithm the value of b. to 4 significant figures. (4mks)

2. Evaluate without using mathematical tables or calculators,

$$2 \log_{10} 5 - \tfrac{1}{2} \log_{10} 64 + 2 \log_{10} 40.$$ (3mks)

3. Use logarithm table to evaluate. (4 marks)

$$\sqrt[3]{\frac{(0.0246)^2 \text{ x } 142}{0.002 \text{ x } 1.14}}$$

4. Without using log tables or a calculator; solve (4mks)

$$\frac{\log \dfrac{1}{4} + \log 64}{\log \dfrac{1}{3^2} - \log \dfrac{1}{8}}$$

5. Solve for x given
$$\left[\frac{1}{8}\right]^x .64^2 = 256$$ (3 marks)

6. Use logarithms to evaluate $\dfrac{(0.6845)^2 \times (0.08416)^{\frac{1}{3}}}{0.005937}$ (4mks)

7. Use logarithms to evaluate (4 marks)

$$8.694 \div \left[(0.1267)^{\frac{1}{3}} \times 0.006974 \right]^{\frac{3}{4}}$$

8. Use mathematical table to evaluate.

$$\sqrt[4]{\frac{2849 \text{ x } 0.00574}{36.89 \div 0.023}}$$

9. Given that y = Bxⁿ. Make n the subject of the formula and simplify your answer

10. Without using mathematical tables or calculators evaluate: $6\log_2 \ 64 + 10\log_3 (243)$

11. Find the value of x that satisfies the equation log $(2x - 11) - \log 2 = \log 3 - \log x$

12. Use logarithms to evaluate to 3 significant figures
$$\frac{(0.5241)^2 \text{ x } 83.59}{\sqrt[3]{0.3563}}$$

13. Use logarithm tables in all your steps to evaluate:

$$\sqrt[3]{\frac{38.32 \text{ x } 12.964}{86.37 \text{ x } 6.285}}$$ leaving your answer to four decimal places

14. Make **L** the subject in :

$$H = \sqrt[3]{\left(\frac{3d\,(L-d)}{10L}\right)}$$

15. Using logarithm tables solve.

$$\left(\frac{6.195 \times 11.82}{83.52}\right)^{\frac{1}{4}}$$

16. Solve the simultaneous equation:-

Log (x-1) + 2log y = 2log3

log x + log y = log 6

17. Without using logarithms tables or calculator evaluate:-

$$\frac{4}{5}\log_{10}32 + \log_{10}50 - 3\log_{10} 2$$

18. Use logarithms to evaluate:-

$$\frac{6.598}{(0.9895)^2 \times 0.004974^{\,0.75}}$$ and express the answer in standard form

19. Solve for **x** given that :- $\log (3x + 8) - 3\log2 = \log (x\text{-}4)$

20. In this question, show all the steps in your calculations, giving your answer at each stage.
Use logarithms correct to 4 decimal places to evaluate:

$$\sqrt[3]{\frac{36.72 \times (0.46)^2}{185.4}}$$

21. Use logarithms to evaluate correct to 4 s.f

$$\left(\frac{\sin 44.5}{\tan 14.90 \times \cos 82}\right)^{\frac{1}{2}}$$

22. Without using logarithm tables evaluate:

$$\sqrt[3]{\frac{3.264 \times 1.215 \times \sqrt{12.25}}{1.088 \times 0.4725}}$$

23. Without using a calculator/mathematical tables, solve: $\log_8 (x + 5) - \log_8(x - 3) = \log_8 4$

24. Use tables to calculate ; $(6.57^2 + 6.57) \div (7.92^2 \times 30.08)$ (Give your answer to 4 decimal places)

25. If $\log^2 = 0.30103$, and $\log^3 = 0.47712$, calculate without using tables or calculators the value of log120

26. Solve for x in the following equation; $\log_2(3x - 4) = \frac{1}{3}\log_2 8x^6 - \log_2 4$

27. By showing all the steps, use logarithms to evaluate: $\dfrac{5.627 \times (0.234)^3}{(8.237)^{\frac{1}{2}}}$

28. Solve the logarithimic equation: $\log_{10} (6x - 2) - 1 = \log_{10} (x\text{-}3)$

29. In this question, show all the steps in your calculations, giving your answers at each stage.
    Use logarithms, correct to 4 d.p to evaluate:-

$$\sqrt[3]{\frac{(0.07526)^2}{1.789 + 4.863}}$$

30. Evaluate using logarithms

$$\sqrt{\frac{4.283 \times (0.009478)^2}{Log\ 9.814}}$$