EXPONENTS AND POWERS (INTERMEDIATE)

Q1. Simplify the following :

a. $\{[(-1/4)^2]^{-2}\}^{3/4}$ b. $(49/121)^{8/3} \times {}^{9}/_{16}$

Q2. Solve each of the following exponential equations :

a $(\sqrt{5})^{x+2} = 3125$ b. $x^3 = 216$ c. $2^x.3^y = 72$ (find x and y).

Q3. By what number should be $(-15)^{-1}$ be divided so that the quotient may be equal to $(-5)^{-1}$.

Q4. Find x if $(5/4)^{-x} \div (25/16)^{-3/2} = (125/64)^{5/3}$.

Q5. If $x = (4/5)^{-2} \div (1/4)^2$, find the value of x^{-2}.

Q6. Find the value of :

a $(8/125)^{2/3} + (9/256)^{1/2}$. b. $(1^3 + 2^3 + 3^3 + 4^3)^{3/2}$.

Q7. Evaluate the following :

a $(0.03125)^{-3/5}$ b. $16^{952} = 1024^x$.

Q8. Simplify the following :

$$[(128)^{-2/7} \times (81)^{4/3} \times (512)^{-4/9}] \div [(25)^{7/2} \times (9)^{-5/2} \times (243)^{3/5}].$$