Question 1:

(i)

$$\left(6^{\frac{2}{5}} \times 6^{\frac{3}{5}}\right) = 6^{\left(\frac{2}{5} + \frac{3}{5}\right)} = 6^1 = 6.$$

(ii)

$$\left(3^{\frac{1}{2}} \times 3^{\frac{1}{3}}\right) = 3^{\left(\frac{1}{2} + \frac{1}{3}\right)} = 3^{\left(\frac{3+2}{6}\right)} = 3^{\frac{5}{6}}.$$

(iii)

$$\left(7^{\frac{5}{6}} \times 7^{\frac{2}{3}}\right) = 7^{\left(\frac{5}{6} + \frac{2}{3}\right)} = 7^{\left(\frac{5+4}{6}\right)}$$

$$= 7^{\frac{9}{6}} = 7^{\frac{3}{2}}.$$

Question 2:

(i)

$$\frac{6^{\frac{1}{4}}}{6^{\frac{1}{5}}} = 6^{\left(\frac{1}{4} - \frac{1}{5}\right)}$$

$$= 6^{\left(\frac{5-4}{20}\right)} = 6^{\frac{1}{20}}.$$

(ii)

$$\frac{8^{\frac{1}{2}}}{8^{\frac{2}{3}}} = 8^{\left(\frac{1}{2} - \frac{2}{3}\right)} = 8^{\left(\frac{3-4}{6}\right)} = 8^{\frac{-1}{6}}.$$

(iii)

$$\frac{5^{\frac{6}{7}}}{5^{\frac{2}{3}}} = 5^{\left(\frac{6}{7} - \frac{2}{3}\right)} = 5^{\left(\frac{18-14}{21}\right)} = 5^{\frac{4}{21}}.$$

********** END *********