**Topic : Indices and Standard form :**

Paper 1:

Q.1: Express 6700 in standard form.        [1]

Q.2: Write down , correct to the nearest integer, the value of $\sqrt{896}$.     [1]

   a)  In 1998 there were $4.9 \times 10^7$ people living in England and of these $9.3 \times 10^6$ were under 16 years of age. Find the number of people who were 16 or over. Give your answer in standard form.        [2]

Q.3: Calculate the value of $9^{\frac{1}{2}} + 9^0$        [1]

   a)  The reciprocal of $2^{-3}$ is $2^n$ . Write down the value of n.   [1]

Q.4: An atom of helium has a mass of $6.8 \times 10^{-27}$ kilograms.

   a)  Express this mass in grams. Give your answer in standard form.   [1]
   b)  A room contains $9 \times 10^{22}$ atoms of helium. Find the mass of helium in the room. Give your answer in grams as a normal decimal number.

Q.5: The number 222.222 is known as shown.

      222.222
      Circle the digit which represents the value $2 \times 10^0$  [1]
   a)  Write $5 \times 10^{-2}$ as a fraction in its simplest form.
   b)  Evaluate  $8^{\frac{2}{3}}$.   [1]

Q.6: The thickness of an oil film is 0.000 004 cm.

   a)  Express 0.000 004 in standard form.     [1]
   b)  The oil covers an area of $20m^2$. Calculating the volume of the oil in cubic centimeters.[2]