1. If the fourth term in the expansion of $\left(x+x^{\log_2 x}\right)^7$ is 4480, then the value of x where $x \in N$ is equal to:

(1) 2 (2) 4

(3) 3 (4) 1

2. The sum of the rational terms in the expansion of $\left(\sqrt{2}+3^{\frac{1}{5}}\right)^{10}$ is

(1) 46 (2) 42

(3) 41 (4) 43

3. If the ratio of the 5^{th} term from the beginning to the 5^{th} term from the end in the expansion of $\left(\sqrt[4]{2}+\frac{1}{\sqrt[4]{3}}\right)^n$ is $\left(\sqrt{6}\right)^5 : 1$, then n is equal to

(1) 17 (2) 18

(3) 19 (4) 20

4. If some three consecutive coefficients in the binomial expansion of $(x+1)^n$ in powers of x are in the ratio $2 : 15 : 70$, then the average of these three coefficients is:

(1) 227 (2) 964

(3) 625 (4) 232

5. The coefficient of t^{24} in the expansion of $\left(1+t^2\right)^{12}\left(1+t^{12}\right)\left(1+t^{24}\right)$ is

(1) ${}^{12}C_6+2$ (2) ${}^{12}C_5$

(3) ${}^{12}C_6$ (4) ${}^{12}C_7$

6. The coefficient of x^{301} in the expansion of $(1+x)^{500}+x(1+x)^{499}+x^2(1+x)^{498}+\ldots+x^{500}$ is

(1) ${}^{501}C_{301}$ (2) ${}^{500}C_{301}$

(3) ${}^{501}C_{300}$ (4) none of these

7. The remainder when 3^{37} is divided by 80 is

(1) 78 (2) 3

(3) 2 (4) 35

8. The remainder obtained when $(25)^{15}$ is divided by 13 is equal to

(1) 1 (2) 12

(3) 0 (4) 2

9. If $\{x\}$ denotes the fractional part of x then $\left\{\frac{3^{2n}}{8}\right\}, n \in N$ is

(1) $\frac{3}{8}$ (2) $\frac{7}{8}$

(3) $\frac{5}{8}$ (4) $\frac{1}{8}$

10. Sum of last two digits of the number 3^{400}, is

(1) 5 (2) 1

(3) 2 (4) 7