

**EXERCISE – II****MULTIPLE CORRECT (OBJECTIVE QUESTIONS)**

1. Let  $(1 + x^2)^2 (1 + x)^n = A_0 + A_1x + A_2x^2 + \dots$

If  $A_0, A_1, A_2$  are in A.P. then the value of  $n$  is

- (A) 2      (B) 3      (C) 5      (D) 7

**Sol.**

2. The number  $101^{100} - 1$  is divisible by

- (A) 100      (B) 1000      (C) 10000      (D) 100000

**Sol.**

3. If the 6<sup>th</sup> term in the expansion of  $\left(\frac{3}{2} + \frac{x}{3}\right)^n$  when

$x = 3$  is numerically greatest then the possible integral value(s) of  $n$  can be

- (A) 11      (B) 12      (C) 13      (D) 14

**Sol.**

4. If  $(9 + \sqrt{80})^n = I + f$  where  $I, n$  are integers and  $0 < f < 1$ , then

(A)  $I$  is an odd integer      (B)  $I$  is an even integer

(C)  $(I + f)(1 - f) = 1$       (D)  $1 - f = (9 - \sqrt{80})^n$

**Sol.**



5. In the expansion of  $\left(x^{2/3} - \frac{1}{\sqrt{x}}\right)^{30}$ , a term containing

the power  $x^{13}$

- (A) does not exist
- (B) exists & the co-efficient is divisible by 29
- (C) exists & the co-efficient is divisible by 63
- (D) exists & the co-efficient is divisible by 65

**Sol.**

6. In the expansion of  $\left(x^3 + 3.2^{-\log \sqrt{2}} \sqrt{x^3}\right)^{11}$

- (A) there appears a term with the power  $x^2$
- (B) there does not appear a term with the power  $x^2$
- (C) there appears a term with the power  $x^{-3}$

(D) the ratio of the co-efficient of  $x^3$  to that of  $x^{-3}$  is  $\frac{1}{3}$

**Sol.**

7. The co-efficient of the middle term in the expansion of  $(1 + x)^{2n}$  is

(A)  $\frac{1.3.5.7.....(2n-1)}{n!} 2^n$  (B)  ${}^{2n}C_n$

(C)  $\frac{(n+1)(n+2)(n+3).....(2n-1)(2n)}{1.2.3.(n-1)n}$

(D)  $\frac{2.6.10.14.....(4n-6)(4n-2)}{1.2.3.4.....(n-1).n}$

**Sol.**

