Answer Ex–I SINGLE CORRECT (OBJECTIVE QUESTIONS)

1. D	**2.** D	**3.** C	**4.** A	**5.** D	**6.** B	**7.** B
8. B	**9.** D	**10.** B	**11.** C	**12.** A	**13.** B	**14.** C
15. B	**16.** A	**17.** A	**18.** A	**19.** D	**20.** C	**21.** C
22. A	**23.** A	**24.** C	**25.** C	**26.** A	**27.** D	**28.** A
29. A	**30.** A	**31.** A	**32.** C	**33.** C	**34.** D	**35.** A
36. C	**37.** C	**38.** A	**39.** C	**40.** C	**41.** B	**42.** A
43. B	**44.** D					

Answer Ex–II MULTIPLE CORRECT (OBJECTIVE QUESTIONS)

1. B,D	**2.** A,C	**3.** A,B	**4.** A,B,C	**5.** A,B,C,D	**6.** A,B,C,D	**7.** A,C
8. A,B,C						

Answer Ex–III SUBJECTIVE QUESTIONS

1. 612 **2.** 128, 771 **3.** 19668 **4.** 4, 9, 14 or 14, 9, 4 **6.** 2, 6, 18 **8.** 3, 7, 11 or 12, 7, 2

9. 6, –3, 3/2,..... **10.** (i) $4 - \frac{2+n}{2^{n-1}}$ (ii) 8/3 **11.** $n.2^{n+2} - 2^{n+1} + 2$ **12.** 1/11

13. a = 4, b = 8 **15.** (i) $\frac{1}{6}$ n (n + 1) (2n + 7) (ii) $\frac{1}{2}(3^{n+1}+1) - 2^{n+1}$

16. (2,5,8.....) (3, 6, 12 ....); (25/2, 79/6, 83/6....) (2/3, 25/3, 625/6 .....) **17.** (i) $2^{n-2}(2^n + 2^{n-1} - 1)$ (ii) $(n-1)^3+n^3$

18. $\frac{65}{36}$ **19.** $\frac{\pi}{2}, \frac{2\pi}{3}, \frac{\pi}{3}$ **20.** $2\pi R^2$; $4R^2$

22. (i) (1/5) n (n + 1) (n + 2) (n + 3) (n + 4) (ii) $\frac{n(n+1)}{4(n+2)}$

23. $\frac{25}{54}$ **25.** 8 terms. Series $1\ \frac{1}{2}$, 3, $4\frac{1}{2}$,..... **26.** Rs. 51

29. $\frac{R\left(1-\sin\frac{\alpha}{2}\right)}{2\sin\frac{\alpha}{2}}\left[\left(\frac{1+\sin\frac{\alpha}{2}}{1-\sin\frac{\alpha}{2}}\right)^n - 1\right]$ **30.** 27

Answer Ex–IV ADVANCED SUBJECTIVE QUESTIONS

2. n = 14 **4.** 1 **5.** (8, – 4, 2, 8) **6.** S = (7/81) $\{10^{n+1} - 9n - 10\}$

7. a = 5, b = 8, c = 12 **9.** (i) $a = -\frac{1}{2}$, $b = -\frac{1}{8}$; (ii) $-\frac{1}{3}$; (iii) $\frac{545}{2}$ **10.** 1

11. $\frac{n(n+1)}{2(n^2+n+1)}; s_\infty = \frac{1}{2}$ **13.** n^2

14. (i) $2^{n+1} - 3$; $2^{n+2} - 4 - 3n$ (ii) $n^2 + 4n + 1$; (1/6)n (n + 1) (2n + 13) + n

15. 120, 30

16. (i)$s_n = (1/24) - [1/\{6(3n + 1)(3n + 4)\}]$; $s_\infty = 1/24$ (ii) (1/5) n (n + 1) (n + 2) (n + 3) (n + 4)

(iii) n/(2n + 1) ; $S_\infty = \frac{1}{2}$ (iv) $S_n = 2\left[\frac{1}{2} - \frac{1.3.5....(2n-1)(2n+1)}{2.4.6....(2n)(2n+2)}\right]; S_\infty = 1$

17. $S = \frac{42}{125}$ **18.** n = 2000

20. $\frac{27}{2}$ **21.** C = 9 ; (3 – 3/2, –3/5) **22.** (iii) b = 4, c = 6, d = 9 **or** b = –2, c = –6, d = –18

24. (i) a = 1, b = 9 or b = 1, a = 9 (ii) a = 1; b =3 or vice versa

26. $2p^3 - 9pq + 27r = 0$; roots are 1, 4, 7 **28.** 518

29. 200 **30.** n = 38 **31.** 931

Answer Ex–V JEE PROBLEMS

1. (a) D **(b)** A **2.** A = 3 ; B = 8 **3.** A.P. **4.** $x = 2\sqrt{2}$ and y = 3

5. (a) A **(b)** C **(c)** D **(d)** $[(A_1 . A_2 ..... A_n)(H_1 . H_2 .....H_n)]^{\frac{1}{2n}}$

6. (a) D **8.** B **10. (a)** C **(b)** n = 7 **11.** $n_0 = 5$

12. (a) B **(b)** D **(c)** B **13. (a)** C **(b)** A **(c)** B

14. (a) B,D **(b)** C **15.** C **16.** 3 **17.** 0 **18.** 8 **19.** 9 **20.** D