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

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.** (3 + 6 + 12 + ...); (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 **19.** $a_n = \frac{1}{n(n+1)}$, $S_n = 1 - \frac{1}{(n+1)}$, $S_\infty = 1$

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.** 0003 **17.** 0000 **18.** 0008 **19.** 0009 **20.** D