

JEE ADVANCED — ANSWER SHEET & SOLUTIONS

Complete Answer Key + Detailed Solutions

SECTION A — Mark ALL Correct Options

Q	Subject	A	B	C	D	Score
1	Physics	☐	☐	☐	☐	
2	Physics	☐	☐	☐	☐	
3	Physics	☐	☐	☐	☐	
4	Physics	☐	☐	☐	☐	
5	Physics	☐	☐	☐	☐	
6	Physics	☐	☐	☐	☐	
7	Physics	☐	☐	☐	☐	
8	Physics	☐	☐	☐	☐	
9	Physics	☐	☐	☐	☐	
10	Physics	☐	☐	☐	☐	
31	Chemistry	☐	☐	☐	☐	
32	Chemistry	☐	☐	☐	☐	
33	Chemistry	☐	☐	☐	☐	
34	Chemistry	☐	☐	☐	☐	
35	Chemistry	☐	☐	☐	☐	
36	Chemistry	☐	☐	☐	☐	
37	Chemistry	☐	☐	☐	☐	
38	Chemistry	☐	☐	☐	☐	
39	Chemistry	☐	☐	☐	☐	
40	Chemistry	☐	☐	☐	☐	
61	Maths	☐	☐	☐	☐	
62	Maths	☐	☐	☐	☐	
63	Maths	☐	☐	☐	☐	
64	Maths	☐	☐	☐	☐	
65	Maths	☐	☐	☐	☐	
66	Maths	☐	☐	☐	☐	
67	Maths	☐	☐	☐	☐	
68	Maths	☐	☐	☐	☐	
69	Maths	☐	☐	☐	☐	
70	Maths	☐	☐	☐	☐	

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SECTION B — Write Integer Answer

Q	Subject	Answer (0–9)	Score
11	Physics	_____	
12	Physics	_____	
13	Physics	_____	
14	Physics	_____	
15	Physics	_____	
16	Physics	_____	
17	Physics	_____	
18	Physics	_____	
19	Physics	_____	
20	Physics	_____	
41	Chemistry	_____	
42	Chemistry	_____	
43	Chemistry	_____	
44	Chemistry	_____	
45	Chemistry	_____	
46	Chemistry	_____	
47	Chemistry	_____	
48	Chemistry	_____	
49	Chemistry	_____	
50	Chemistry	_____	
71	Maths	_____	
72	Maths	_____	
73	Maths	_____	
74	Maths	_____	
75	Maths	_____	
76	Maths	_____	
77	Maths	_____	
78	Maths	_____	

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79	Maths	_____	
80	Maths	_____	

SECTION C — Circle Correct Option

Q	Subject	A	B	C	D	Score
21	Physics	■	■	■	■	
22	Physics	■	■	■	■	
23	Physics	■	■	■	■	
24	Physics	■	■	■	■	
25	Physics	■	■	■	■	
26	Physics	■	■	■	■	
27	Physics	■	■	■	■	
28	Physics	■	■	■	■	
29	Physics	■	■	■	■	
30	Physics	■	■	■	■	
51	Chemistry	■	■	■	■	
52	Chemistry	■	■	■	■	
53	Chemistry	■	■	■	■	
54	Chemistry	■	■	■	■	
55	Chemistry	■	■	■	■	
56	Chemistry	■	■	■	■	
57	Chemistry	■	■	■	■	
58	Chemistry	■	■	■	■	
59	Chemistry	■	■	■	■	
60	Chemistry	■	■	■	■	
81	Maths	■	■	■	■	
82	Maths	■	■	■	■	
83	Maths	■	■	■	■	
84	Maths	■	■	■	■	
85	Maths	■	■	■	■	
86	Maths	■	■	■	■	
87	Maths	■	■	■	■	

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88	Maths	■	■	■	■	
89	Maths	■	■	■	■	
90	Maths	■	■	■	■	

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✓ COMPLETE ANSWER KEY

Q	Subject	Answer	Type
1	Physics	A,B,C,D	MCQ Multi-correct
2	Physics	A,B,C,D	MCQ Multi-correct
3	Physics	C,D	MCQ Multi-correct
4	Physics	A,B,C	MCQ Multi-correct
5	Physics	A,B,D	MCQ Multi-correct
6	Physics	A,B,D	MCQ Multi-correct
7	Physics	A,B,C	MCQ Multi-correct
8	Physics	A,B,C	MCQ Multi-correct
9	Physics	A,B,C,D	MCQ Multi-correct
10	Physics	A,D	MCQ Multi-correct
11	Physics	5	Integer (0-9)
12	Physics	3	Integer (0-9)
13	Physics	5	Integer (0-9)
14	Physics	4	Integer (0-9)
15	Physics	8	Integer (0-9)
16	Physics	1	Integer (0-9)
17	Physics	3	Integer (0-9)
18	Physics	42	Integer (0-9)
19	Physics	2	Integer (0-9)
20	Physics	8	Integer (0-9)
21	Physics	B	Single Correct (Paragraph)
22	Physics	D	Single Correct (Paragraph)
23	Physics	A	Single Correct (Paragraph)
24	Physics	B	Single Correct (Paragraph)
25	Physics	A	Single Correct (Paragraph)
26	Physics	C	Single Correct (Paragraph)
27	Physics	B	Single Correct (Paragraph)
28	Physics	B	Single Correct (Paragraph)
29	Physics	B	Single Correct (Paragraph)
30	Physics	B	Single Correct (Paragraph)
31	Chemistry	A,B,C,D	MCQ Multi-correct
32	Chemistry	A,B,C,D	MCQ Multi-correct
33	Chemistry	A,C	MCQ Multi-correct

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34	Chemistry	A,B,C,D	MCQ Multi-correct
35	Chemistry	A,C,D	MCQ Multi-correct
36	Chemistry	A,C	MCQ Multi-correct
37	Chemistry	A,B,C,D	MCQ Multi-correct
38	Chemistry	A,B	MCQ Multi-correct
39	Chemistry	A,B,C,D	MCQ Multi-correct
40	Chemistry	A,B,D	MCQ Multi-correct
41	Chemistry	2	Integer (0-9)
42	Chemistry	3	Integer (0-9)
43	Chemistry	6	Integer (0-9)
44	Chemistry	2	Integer (0-9)
45	Chemistry	3	Integer (0-9)
46	Chemistry	49	Integer (0-9)
47	Chemistry	2	Integer (0-9)
48	Chemistry	3	Integer (0-9)
49	Chemistry	7	Integer (0-9)
50	Chemistry	6	Integer (0-9)
51	Chemistry	B	Single Correct (Paragraph)
52	Chemistry	B	Single Correct (Paragraph)
53	Chemistry	A	Single Correct (Paragraph)
54	Chemistry	B	Single Correct (Paragraph)
55	Chemistry	A	Single Correct (Paragraph)
56	Chemistry	C	Single Correct (Paragraph)
57	Chemistry	B	Single Correct (Paragraph)
58	Chemistry	C	Single Correct (Paragraph)
59	Chemistry	A	Single Correct (Paragraph)
60	Chemistry	C	Single Correct (Paragraph)
61	Maths	A,B,C,D	MCQ Multi-correct
62	Maths	A,D	MCQ Multi-correct
63	Maths	A,B,D	MCQ Multi-correct
64	Maths	A,B,D	MCQ Multi-correct
65	Maths	A,B,C	MCQ Multi-correct
66	Maths	A,C,D	MCQ Multi-correct
67	Maths	A,B,C,D	MCQ Multi-correct
68	Maths	A,B,C	MCQ Multi-correct
69	Maths	A,B,C,D	MCQ Multi-correct

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70	Maths	A,B,D	MCQ Multi-correct
71	Maths	4	Integer (0-9)
72	Maths	7	Integer (0-9)
73	Maths	6	Integer (0-9)
74	Maths	21	Integer (0-9)
75	Maths	6	Integer (0-9)
76	Maths	3	Integer (0-9)
77	Maths	155	Integer (0-9)
78	Maths	2	Integer (0-9)
79	Maths	6	Integer (0-9)
80	Maths	1	Integer (0-9)
81	Maths	A	Single Correct (Paragraph)
82	Maths	A	Single Correct (Paragraph)
83	Maths	A	Single Correct (Paragraph)
84	Maths	A	Single Correct (Paragraph)
85	Maths	A	Single Correct (Paragraph)
86	Maths	A	Single Correct (Paragraph)
87	Maths	A	Single Correct (Paragraph)
88	Maths	B	Single Correct (Paragraph)
89	Maths	B	Single Correct (Paragraph)
90	Maths	A	Single Correct (Paragraph)

■ DETAILED SOLUTIONS

Q11: Taking up as positive: $s = -45$, $u = 20$, $a = -10 \rightarrow -45 = 20t - 5t^2 \rightarrow 5t^2 - 20t - 45 = 0 \rightarrow t^2 - 4t - 9 = 0 \rightarrow t = (4 + \sqrt{52})/2 \approx 5$ s (answer: 5)

Q12: Parallel $R = 3 \times 6 / (3 + 6) = 2\Omega$. Total $R = 2 + 1 = 3\Omega$. $I = 9/3 = 3$ A

Q13: Mirror eq: $1/v + 1/u = 1/f = 1/20$. Image at 10cm $\rightarrow 1/u = 1/20 - 1/10 = -1/20 \rightarrow u = -20$ cm. $m = -v/u = 10/20 = 0.5$. $10 \times m = 5$

Q14: $R \propto l^2/V$. Stretching doubles l , halves A , so $R_{\text{new}} = \rho(2L)/(A/2) = 4R = 4 \times 8 = 32\Omega$. Multiplier = 4

Q15: After 3 half-lives: $(1/2)^3 = 1/8$. $N = 8$

Q16: $v_{\text{max}} = A\omega = A\sqrt{k/m} = 0.1 \times \sqrt{(200/2)} = 0.1 \times 10 = 1$ m/s

Q17: Mass: $235 + 1 = 141 + 92 + x \rightarrow x = 3$

Q18: $\sin(C) = 1/n = 1/1.5 = 2/3 \rightarrow C = \arcsin(0.667) \approx 41.8^\circ \approx 42^\circ$

Q19: $P = VI \rightarrow I = P/V = 40/200 = 0.2$ A. $10 \times I = 2$

Q20: $a = v^2/r = 16/2 = 8$ m/s²

Q42: $\text{pH} = -\log[\text{H}^+] = -\log(0.001) = 3$

Q43: $+2 \times 1 + S + (-2) \times 4 = 0 \rightarrow S = +6$

Q44: n-butane and isobutane = 2 isomers

Q45: 3 atoms (triatomic)

Q46: Eq.wt = $98/2 = 49$

Q47: CO_2 : $\text{O}=\text{C}=\text{O} \rightarrow 2$ pi bonds

Q48: $\text{K}_2\text{SO}_4 \rightarrow 2\text{K}^+ + \text{SO}_4^{2-} \rightarrow i = 3$

Q49: $\text{KMnO}_4 \rightarrow \text{Mn}$ is +7

Q50: Ne: $1s^2 2s^2 2p^6 \rightarrow 2p$ has 6 electrons

Q71: $x^2 - 5x^2 + 4 = 0 \rightarrow (x^2 - 1)(x^2 - 4) = 0 \rightarrow x = \pm 1, \pm 2 \rightarrow 4$ real roots

Q72: $n(n-1)/2 = 21 \rightarrow n(n-1) = 42 \rightarrow n = 7$

Q73: $\sin 75^\circ = (\sqrt{6} + \sqrt{2})/4$, $\cos 75^\circ = (\sqrt{6} - \sqrt{2})/4$. $\text{Sum} = 2\sqrt{6}/4 = \sqrt{6}/2 = \sqrt{6}/2$. So $\sqrt{N}/2 = \sqrt{6}/2 \rightarrow N = 6$

Q74: $C(5+3-1, 3-1) = C(7, 2) = 21$ terms

Q75: Area = $(1/2) \times 4 \times 3 = 6$ sq units

Q76: $\log_8 8 = \log_8 (2^3) = 3$

Q77: $S = n/2(2a + (n-1)d) = 10/2(4 + 27) = 5 \times 31 = 155$

Q78: $|1 \times 4 - 2 \times 3| = |4 - 6| = 2$

Q79: Onto functions from 3 to 2: $2^3 - 2 = 6$

Q80: $7^1 \equiv 2, 7^2 \equiv 4, 7^3 \equiv 3, 7^4 \equiv 1 \pmod{5}$. $100 = 4 \times 25 \rightarrow 7^{100} \equiv 1 \pmod{5}$. Remainder = 1