

## AIPMT 2009 ANALYSIS

We hope you have done in AIPMT conducted on 5<sup>th</sup> April, 2009.

There were four versions of the Question papers, A, B, C & D. In different versions the orders of the subjects were also different. For example, in version – A the first 50 questions were from Physics, next 50 questions from Chemistry and the last 100 questions from Biology. But in version B the first 50 questions were from Chemistry, next 100 questions from Biology and the last 50 questions from Physics. Similarly in version C first 100 questions from Biology followed by Physics and Chemistry. In Version D this order is Physics followed by Biology and Chemistry. The order of the answer choices were also jumbled in different versions. The answer key for all the four versions are given here. In addition to this, detailed solution of version A is also included. Those who are having versions other than A the solution for each question can be found out using the conversion chart given as a part of the keys for the different versions.

### KEY AND SOLUTION FOR AIPMT -PRELIMS-2009 Solutions for Version C

#### NOTE:

The terms “Easy (E)”, “Medium: (M)”, and “Difficult: (D)” are based on the following points

#### EASY (E):-

Easy Questions are defined as those questions that can be answered by a student who knows the concept under question. It is a direct application of the concept. A student is expected to have attempted all the EASY Category Questions.

#### MEDIUM (M):-

Medium Difficulty Questions are those questions that may involve more than one concept. A well-prepared student should be able to identify at least 75% of these and solve them correctly.

#### DIFFICULT (D):-

Difficult Questions are those questions are those will definitely involve multiple concepts and are tricky. The students may be led to think away from the ideal method of problem solving. It will require good effort even from the well prepared student to identify the Difficult ones and categorize them accordingly.

Code C	KEY	Code A	KEY	Code B	KEY	Code D	KEY
1	3	1	2	1	1	1	4
2	2	2	4	2	1	2	1
3	4	3	2	3	3	3	1
4	1	4	3	4	3	4	2
5	3	5	2	5	1	5	3
6	3	6	3	6	2	6	4
7	1	7	3	7	2	7	3
8	2	8	2	8	1	8	2
9	4	9	3	9	3	9	2
10	4	10	1	10	4	10	3
11	4	11	4	11	3	11	3
12	4	12	4	12	3	12	4

13	4	13	2	13	3	13	3
14	4	14	2	14	1	14	1
15	1	15	1	15	2	15	4
16	1	16	3	16	2	16	1
17	4	17	4	17	1	17	3
18	2	18	1	18	1	18	1
19	4	19	4	19	1	19	2
20	4	20	1	20	2	20	2
21	3	21	3	21	1	21	2
22	4	22	2	22	4	22	4
23	3	23	1	23	4	23	1
24	3	24	3	24	1	24	3
25	1	25	4	25	1	25	4
26	1	26	2	26	1	26	4
27	4	27	4	27	3	27	4
28	4	28	2	28	1	28	2
29	3	29	2	29	1	29	1
30	2	30	2	30	2	30	1
31	1	31	2	31	1	31	3
32	1	32	1	32	1	32	1
33	2	33	4	33	1	33	1
34	4	34	2	34	3	34	4
35	2	35	2	35	4	35	4
36	1	36	3	36	4	36	1
37	4	37	3	37	3	37	3
38	2	38	2	38	1	38	2
39	3	39	4	39	4	39	4
40	3	40	3	40	4	40	2
41	1	41	3	41	3	41	4
42	2	42	1	42	1	42	4
43	2	43	1	43	4	43	4
44	2	44	3	44	1	44	1
45	1	45	2	45	4	45	4
46	4	46	1	46	1	46	3
47	1	47	3	47	1	47	3
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49	1	49	4	49	3	49	4
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52	3	52	2	52	2	52	2
53	4	53	2	53	3	53	1
54	2	54	4	54	2	54	2
55	3	55	4	55	2	55	4
56	4	56	2	56	3	56	3
57	1	57	2	57	3	57	1
58	2	58	2	58	3	58	2
59	2	59	2	59	3	59	2
60	3	60	2	60	2	60	4
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67	4	67	4	67	3	67	2
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70	1 or 3	70	2	70	4	70	3
71	4	71	3	71	1	71	4
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73	3	73	3	73	3	73	2
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106	3	106	3	106	4	106	2
107	3	107	4	107	3	107	1
108	1	108	4	108	4	108	1
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196	1	196	2	196	2	196	2
197	2	197	4	197	3	197	4
198	3	198	3	198	2	198	3
199	2	199	1	199	2	199	1
200	3	200	4	200	4	200	3

- The units need to be interchanged for Q No 122 In Version C

Sl. No.	Key	Solution	Chapter Name	Difficulty Level			Remarks
				E	M	D	
1	3	Natural selection for Darwinism	Evolution		√		
2	2	Castor seed shows caruncle and endosperm	Morphology of flowering plants		√		
3	4	A massive public movement for forest tree protection started by Chipko movement	Environmental Issues	√			
4	1	Epithelial tissues are without intercellular space and matrix	Structural Organisation in Animals	√			
5	3	Phytophthora infestans	Strategies for enhancement in food production			√	
6	3	Genetic code is contiguous	Molecular basis of inheritance		√		
7	1	Corpus luteum secretes progesterone	Human Reproduction		√		
8	2	T stands for thymus in T-cells	Human Health and Disease	√			
9	4	Sperms are formed like spermatogonia – Spermatocyte – Spermatid - Sperms	Human Reproduction		√		
10	4	Base change results in point mutation	Molecular Basis of Inheritance	√			
11	4	Bt toxin is produced by the <i>Bacillus thuringiensis</i>	Biotechnology and Application	√			
12	4	Other options are not triploblastic animals	Animal Kingdom	√			
13	4	Nitrogenase is involved in N <sub>2</sub> fixation	Microbes in Human Welfare			√	
14	4	Euro norms are introduced for pollution control	Environmental issues			√	
15	1	Foetus and placenta help the foetal ejection in parturition	Human Reproduction		√		
16	1	<i>Agrobacterium tumefaciens</i> is a vector	Biotechnology and its Application	√			
17	4	Coelomic fluid is seen in between body wall and gut	Structural Organisation in Animals		√		
18	2	Sewage disposal results BOD	Environmental		√		

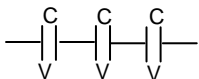

		decrease in river water	Issues				
19	4	Cereal grains are used for alcohol production	Microbes and Human Welfare			√	
20	4	1000 varieties of Mangoes are there in India	Biodiversity and conservation		√		
21	3	Figure A shows recent age – sex pyramid.	Organism and population			√	
22	4	Fructose and amino acids are absorbed by facilitated diffusion.	Digestion and Absorption		√		
23	3	NAA is synthetic auxin	Plant Growth and Development	√			
24	3	Edible part of pomegranate is the testa modification.	Morphology of Flowering Plants			√	
25	1	Ciliated tissues present in bronchioles and fallopian tubules	Structural Organisation in Animals	√			
26	1	Synthesis of DNA results in the marked D part in the diagram	Cell Cycle and Cell Division		√		
27	4	Transgenic organisms show foreign DNA or genes.	Biotechnology and its Application		√		
28	4	Common cold is caused by <i>Rhino virus</i> .	Human Health and Diseases	√			
29	3	<i>Sorghum</i> is a monocot plant	Anatomy of Flowering Plants	√			
30	2	<i>Xanthomonas</i> is a parasite	Microbes in Human Welfare			√	
31	1	Aerobic respiration is both anabolic and catabolic.	Respiration in Plants		√		
32	1	ADA deficiency results SCID in humans	Biotechnology and its Application		√		
33	2	The floral formula is of <i>Solanaceae family</i>	Morphology of Flowering plants		√		
34	4	Preformed antibodies provide quick immunity	Human Health and Disease			√	
35	2	Plasmodesmata are live intercellular plant cell connections	Cell the Unit of Life	√			
36	1	<i>Frankia</i> is an actinomycete symbiotic N <sub>2</sub> fixer	Microbes in Human Welfare		√		
37	4	Heterospory leads to seed habit in	Plant Kingdom	√			

		plants					
38	2	Metastasis means spreading of tumours	Human Health and Diseases		√		
39	3	Ovum fertilization leads to pregnancy and the absence menstrual cycle	Human Reproduction		√		
40	3	Antibodies are immunoglobulins	Body Fluids and Circulation	√			
41	1	Point Mutation causes sickle cell anaemia	Principles of Inheritance and Variation		√		
42	2	No antigens in 'O' blood group	Body Fluids and Circulation		√		
43	2	Cytoskeleton provides strength and rigidity to cytoplasm	Cell The Unit of Life		√		
44	2	Exarch condition is seen in root	Anatomy of Flowering Plants	√			
45	1	Mn helps in photolysis of H <sub>2</sub> O	Photosynthesis	√			
46	4	Marked regions are correct in option 4.	Human Reproduction			√	
47	1	Jawless fishes come in the class Cyclostomata	Animal Kingdom		√		
48	2	Stretch receptors are required for micturition	Excretory Products and their Elimination		√		
49	1	Deficiency of thyroxine in children causes cretinism	Chemical Co-ordination and Integration		√		
50	2	Cyclic photophosphorylation shows the absence of photolysis of H <sub>2</sub> O	Photosynthesis	√			
51	1	Calcium pectates are seen in middle lamella	Cell The Unit of Life	√			
52	3	Genetic variations seen in the tissue cultural clones are the somaclones.	Strategies for Enhancement in Food Production		√		
53	4	Semi conservative DNA replication is experimentally proved by using <i>E.coli</i> .	Molecular Basis of Inheritance	√			
54	2	Movement of Iris is involuntary	Structural Organisation in Animals			√	
55	3	DDT is toxic and insoluble in water	Environmental issues		√		

56	4	Fishes are of varying sizes and of different trophic levels	Ecosystem		√		
57	1	Terrestrial arthropods are uricotelics	Excretory products and their elimination	√			
58	2	ABA is formed from the carotenoid molecules	Plant Growth and Development		√		
59	2	Ear pinna and nose tips are supported by cartilage tissues	Structural Organisation in Animals		√		
60	3	Viroids consist free infectious RNA	Biological Classification	√			
61	3	Phylogenetic means the history of evolution	Biological classification	√			
62	3	Runners are slender subaerial stem modification	Morphology of Flowering Plants		√		
63	3	Vascular cryptogams are non-flowering plants in pteridophytes	Plant Kingdom		√		
64	1	Gir forest is famous for Lions	Biodiversity and Conservation		√		
65	4	Yolk distribution affects the pattern of cleavage of zygote	Human Reproduction		√		
66	3	Splicing is seen in Eukaryotes	Molecular Basis of Inheritance	√			
67	4	Elbow joint is hinge joint	Locomotion and Movement	√			
68	1	Syconus is a compound fruit developed from an inflorescence	Morphology of Flowering Plants		√		
69	3	Deficiency of protein and calorie cause marasmus	Digestion and Absorption		√		
70	1 or 3	Stroma is the fluid of chloroplast	Cell The Unit of Life		√		
71	4	Blue green algae are photosynthetic organisms	Photosynthesis in Higher Plants		√		
72	4	Autosomal inheritance as it is seen in both male and female	Principles of Inheritance and Variation			√	
73	3	Seminal plasma is the secretion of seminal vesicle	Human Reproduction	√			
74	3	Bt. Toxin is an endotoxin produced by <i>Bacillus thuringiensis</i>	Biotechnology and its Application	√			
75	2	Anmular and spiral xylem vessels are present in the plants	Plant Anatomy			√	
76	3	PEG is used in somatic hybridisation	Biotechnology and its Application			√	
77	4	RBCs lack nucleus and other organelles	Cell: The Unit of Life		√		
78	4	O <sub>3</sub> depleting substances reduction is enforced in Montreal Protocol	Environmental Issues		√		
79	3	O <sub>3</sub> depleting substances reduction is enforced in Montreal Protocol	Environmental Issues		√		
80	4	Bile pigments impart yellow colour in an infant's stool	Digestion & Absorption		√		
81	2	P-Wave indicates Auricular contraction	Body Fluids and Circulation		√		
82	4	Ecological succession shows various seral stages	Ecosystem		√		

83	2	2 pairs of testes are seen in 10 <sup>th</sup> and 11 <sup>th</sup> segments of Earthworm	Structural Organisation in Animals		√		
84	4	Thiamine is vitamin B <sub>1</sub>	Locomotion and Movement		√		
85	4	Monoecious are with both male and female parts in the flowers or cones	Reproduction in Organism	√			
86	2	Hydrophytes are with highly reduced tissues	Organism and Population	√			
87	4	Vascular bundles are closed and scattered in monocot stem	Anatomy of Flowering Plants	√			
88	2	Baldness is a sex-influenced trait	Principles of Inheritance and Variations		√		
89	1	Starch generally gets digested in the mouth	Digestion and Absorption		√		
90	3	Triplet codons are elucidated by Nirenberg and Mathaei	Molecular Basis of Inheritance		√		
91	1	<i>Peripatus</i> shares both annelid and arthropod characters	Animal Kingdom	√			
92	1	Haploid phase is dominant in haplontic life cycle	Plant Kingdom			√	
93	1	Ovules are arranged along the central placenta in lemon	Morphology of Flowering Plants		√		
94	2	Homologous chromosomes exhibit pairing or synapsis	Cell Cycle and Cell Division	√			
95	1	Manitol is the reserve food seen in brown algae	Plant Kingdom		√		
96	4	Guard cells regulate the closing and opening of stomata	Transport in Plants	√			
97	1	Lymph consists of more WBCs.	Body Fluids and Circulation			√	
98	2	Hypothalamus controls the body temperature	Neural Control and Co-ordination	√			
99	3	Antihistamine gives quick relief against allergy	Human Health and Diseases		√		
100	1	Deficiency of acetylcholine is associated with Alzheimer's disease	Principles of Inheritance and Variation			√	
101	2		Magnetic Effects	√			
102.	4	Acceleration is proportional to the negative of displacement	Oscillations	√			
103.	3	Kirchhoff's second law (upper loop)	Current Electricity		√		
104	3	$\vec{E} = \nabla V$	Electrostatics		√		
105	2	Mass number = A - 4 Atomic number = Z - 2 + 2 ⇒ isotope	Modern Physics		√		
106	3	Diamagnet pushes field lines away	Magnetism	√			
107	3	$P = I^2 R = \frac{e^2}{Z^2} .R$	EMI & AC		√		
108	1	$S_1 = \frac{1}{2} at^2$ ; $S_2 = \frac{1}{2} a(2t)^2$ $S_2 = 4 S_1$	Motion in 1D		√		

109	3	$\varepsilon = \frac{d}{dt} (B\pi r^2)$ $= 2B\pi r \frac{dr}{dt}$	EMI & AC		√		
110	3	$I = 4 \times \left[ \frac{ML^2}{12} + M \left( \frac{L}{2} \right)^2 \right]$ $= \frac{4}{3} ML^2$	Rotational Dynamics		√		
111	4	$MR^2\omega = (M + 2m)R^2\omega'$ $\omega' = \frac{M\omega}{M + 2m}$	Rotational Dynamics		√		
112	4	$\frac{v}{2L_1} - \frac{v}{2L_2} = \beta$ $\frac{1}{2} \sqrt{20 \times 10^3} \left( \frac{1}{L_1} - \frac{1}{L_2} \right) \approx 7$	Oscillations & Waves			√	
113	4	$r_0 \propto \frac{Z_1 Z_2}{E}$	Modern Physics		√		
114	1	$v = v_0 \left( \frac{c + v_0}{c - v_s} \right) = 720$	Oscillations & Waves		√		
115	3	$\frac{1}{2} mv^2 - mgH$	Work, Power & Energy	√			
116	4	$\frac{1(\hat{i} + 2\hat{j} + \hat{k}) + 3(-3\hat{i} - 2\hat{j} + \hat{k})}{4}$ $= -2\hat{i} - \hat{j} + \hat{k}$	Rotational Dynamics		√		
117	4	$E(\text{eV}) = \frac{1242}{667} \sim 2 \text{ eV}$ $\therefore n = \frac{9 \times 10^{-3}}{2 \times 1.6 \times 10^{-19}} \sim 3 \times 10^{16}$	Modern Physics		√		
118	4	$V = \varepsilon - iR$ $\frac{dV}{di} = -R$	Current Electricity			√	
119	3	$v_{\text{rel}} = \frac{1000}{100} = 10 \text{ ms}^{-1}$ $\therefore v = 10 + 10 = 20 \text{ ms}^{-1}$	Motion in 1D		√		
120	2	$v = \omega \sqrt{a^2 - \left( \frac{a}{2} \right)^2}$ $= \frac{2\pi \sqrt{3}}{T} a$	Oscillation & Waves		√		
121	3	1 <sup>st</sup> emission $\beta$ 2 <sup>nd</sup> emission $\alpha$ 3 <sup>rd</sup> emission $\gamma$	Modern Physics	√			
122*	1	$E_y = E_0 \cos(\omega t - kx)$	EM Waves				
123	1	$U = MB(1 - \cos\theta)$ $= 2 \times 10^4 \times 6 \times 10^{-4} \left( 1 - \frac{1}{2} \right)$ $= 6 \text{ J}$	Magnetism		√		
124	2	By definition $\frac{dQ}{dt} = kA \frac{T}{L}$	Heat & Thermodynamics	√			

125	1	 $= \frac{C}{3}, 3V$	Electrostatics		√		
126	4	Same material same stopping potential means same frequency	Modern Physics		√		
127	2	$\frac{1240}{2.5} \sim 500 \text{ nm}$ $< 5000 \text{ \AA} \Rightarrow 4000 \text{ \AA}$	Modern Physics		√		
128	2	$\Delta U = \Delta Q - \Delta W$ $= 2 \times 10^3 \times 4.2 - 500$ $= 7900 \text{ J}$	Heat & Thermodynamics		√		
129	3	$V_A \propto (a - b + c)$ $V_B \propto \left( \frac{a^2}{b} - b + c \right)$ $V_C \propto \left( \frac{a^2}{c} - \frac{b^2}{c} + c \right)$ $c = a + b \Rightarrow$ $V_A = V_C \text{ and } V_A \neq V_B$	Electrostatics			√	
130	1	Conceptual	Modern Physics	√			
131	3	Mass rate = mv Velocity = v $\text{Energy} = \frac{1}{2} mv \cdot v^2 = \frac{1}{2} mv^3$	Properties of Matter			√	
132	4	$\frac{1}{2} Kx^2 = mgx$	Work Power Energy		√		
133	1	$T = \frac{2\pi m}{qB}$ Independent of v and R	Magnetic Effects	√			
134	3	$F = q(v \times B)$	Magnetic Effects		√		
135	2	$\text{Gain} = \frac{5 \times 10^{-3}}{100 \times 10^{-6}} = 50$	Electronics		√		
136	2	$\frac{n(n-1)}{2} = 6$ $n = 4$ Minimum is 4 → 3	Modern Physics		√		
137	2	$y = A \sin(kx - \omega t)$	Waves		√		
138	2	$ F  = \sqrt{6^2 + 8^2 + 10^2} = 10\sqrt{2}$	Laws of Motion		√		
139	4	$a = \frac{8000}{2000} = 4 \text{ m/s}^2 \text{ upwards}$	Laws of Motion		√		
140	4	 $\sqrt{3} \frac{a}{2} = 3.7$ $a = 4.3 \text{ \AA}$	Modern Physics		√		
141	1		Electronics	√			
142	3	$\frac{\sqrt{16^2 + 12^2}}{4} = 5 \text{ kg}$	Work, Energy & Power		√		
143	1	$\vec{r} \times \vec{F} \perp \vec{r} \text{ to } \vec{r} \ \& \ \vec{F}$	Rotational Dynamics	√			

144	3	$[\text{Pressure}] = \frac{\text{Force}}{\text{Area}}$ $\text{ML}^{-1}\text{T}^{-2}$	Units & Dimensions	√			
145	1	$\left(\frac{1000}{500}\right)^4 \times 7 = 16 \times 7 = 112$	Heat & Thermodynamics		√		
146	4	$\frac{dA}{dt}$ is non-uniform for circle and ellipse	Electromagnetic Induction		√		
147	3	Total resistance $R = 2\pi r \times 12 = 2.4\pi$ Effective resistance = $\frac{R}{4} = 0.6\pi \Omega$	Current Electricity		√		
148	1	Areal velocity = constant	Gravitation		√		
149	2	Field = $\frac{2}{4 \times 10^{-8}} = 5 \times 10^7 \text{ V/m}$	Current Electricity		√		
150	4	Isochoric is at constant volume	Heat & Thermodynamics	√			
151	3	$\frac{-1}{5} \frac{d[\text{Br}^-]}{dt} = \frac{1}{3} \frac{d[\text{Br}_2]}{dt}$	Chemical Kinetics	-	√	-	
152	1	$\text{C}_6\text{H}_5\text{OH} \xrightarrow[\text{heat}]{\text{Zn dust}} \text{C}_6\text{H}_6$ (X) $\text{C}_6\text{H}_5\text{COOH} \xrightarrow[\text{anhy. AlCl}_3]{\text{CH}_3\text{Cl}} \text{C}_6\text{H}_5\text{CH}_3$ (Y) $\xrightarrow{\text{KMnO}_4}$	Alcohols, phenols and ethers	-	√	-	
153	3	Hydrogen bonding	Chemical Bonding	√	-	-	
154	2	But-1-en-3-yne	Organic Some basic principles	√	-	-	
155	3	$\Delta T_f = i K_f m$	Solutions	-	√	-	
156	3	$[\text{OH}^-] = \frac{30 \times .2 - 20 \times .05}{50} = 0.1 \text{ M}$	Equilibrium	-	√	-	
157	4	B.O is as follows $N_2 = 3 N_2^- = 2.5 N_2^{2-} = 2$	Chemical Bonding	-	√	-	
158	3	There are $2l + 1$ orbitals hence $4l + 2$ electrons	Structure of atom	√	-	-	
159	3	Secondary amines produce N-nitrosamines with nitrous acid	Amines	-	√	-	
160	4	$[\text{Co}(\text{NH}_3)_3\text{Cl}_3]$ can exhibit geometrical isomerism but not optical isomerism	Co-ordination compounds	-	√	-	

161	1	Oxygen is the limiting reactant hence 64 g oxygen and 8g hydrogen forms 72 g water i.e. 4mole water	Some basic concepts	-	√	-	
162	2	$\text{CH}_3\text{CH}_2\text{OH} \xrightarrow{\text{PBr}_2} \text{CH}_3\text{CH}_2\text{Br}$ $\xrightarrow{\text{alc.KOH}} \text{CH}_2 = \text{CH}_2$ $\xrightarrow[\text{H}_2\text{O, heat}]{\text{H}_2\text{SO}_4} \text{CH}_3\text{CH}_2\text{OH}$	Alcohols, phenols and ethers	-	-	√	
163	3	Hydrolysis of alkyl halides is a nucleophilic substitution reaction	Haloalkanes and haloarenes	-	√	-	
164	3	O.N of P in $\text{PO}_4^{3-}$ is +5 S in $\text{SO}_4^{2-}$ is +6 Cr in $\text{Cr}_2\text{O}_7^{2-}$ is +6	Redox reaction	-	√	-	
165	2	Thyroxine contains iodine	Biomolecules	√	-	-	
166	2	It is H.V.Z reaction	Aldehydes, Ketones and Carboxylic acids	-	√	-	
167	2	$K = \frac{k_f}{k_b} = \frac{K_{a1}}{K_{a2}} = \frac{1.5 \times 10^{-5}}{4.5 \times 10^{-10}}$ $= 3.3 \times 10^4$	Equilibrium	-	√	-	
168	1	When $l = 2$ $m$ cannot be -3	Structure of atom	√	-	-	
169	2	$(\text{CH}_3)_2\text{SiCl}_2$ on hydrolysis followed by condensation polymerisation give silicones which are straight chain polymers	P-block elements	-	√	-	
170	1	$\text{HNO}_3$ provides $\text{NO}_2^+$ by accepting proton from $\text{H}_2\text{SO}_4$ $\text{H}_2\text{SO}_4 + \text{HNO}_3 \rightarrow \text{HSO}_4^- + \text{H}_2\text{O} + \text{NO}_2^+$	Organic some basic principles	-	√	-	
171	3	$K_h = \frac{K_w}{K_b} = \frac{10^{-14}}{1.77 \times 10^{-5}}$ $= 5.65 \times 10^{-10}$	Equilibrium	-	√	-	
172	3	Equanil is used as a tranquiliser	Chemistry in everyday life	√	-	-	
173	1	$[(4 \times 410.5) + 606.1 + 431.37] - [(6 \times 410.5) + 336.49] = 120.02 \text{ kJ}$	Thermodynamics	-	√	-	

174	2	Larger the size of anion greater is the covalent character – Fajan's rule	Chemical bonding	-	√	-	
175	3	$-n_3 E_3^0 = -F (n_1 E_1^0 - n_2 E_2^0)$ $= 2 \times .337 - 1 \times .153$ $= .674 - .153 = .521$	Electrochemistry	-	-	√	
176	3	Nucleotide sequences corresponds to a particular amino acid into a synthesing protein	Biomolecules	√	-	-	
177	4	The overall reaction is of order three. It is first order with respect to A & second order with respect to B	Chemical Kinetics	-	√	-	
178	1	Both Ti (IV) & Cu(I) do not contain unpaired electrons hence they are colourless	d & f Block elements	-	√	-	
179	1	Unpaired electrons are present in $[\text{Cr}(\text{NH}_3)_6]^{3+}$	Co-ordination	-	√	-	
180	1	$\frac{4 \times 10^4 \text{ A for 6 hrs} = 4 \times 10^4 \times 6 \times 3600}{96500} = 8.95 \times 10^3 \text{ F}$ Amount of Al = $8.95 \times 10^3 \times 9 = 8.1 \times 10^4$	Electrochemistry	-	-	√	
181	4	CaO – Both basic	s-Block elements	-	√	-	
182	3	Inert pair effect	p-Block elements	-	√	-	
183	3	$K_a = c\alpha^2 = \frac{1}{32} \times \frac{8}{400} \times \frac{8}{400}$ $= 1.25 \times 10^{-5}$	Equilibrium	-	√	-	
184	4	$\sqrt{3} a = 4r \quad r = \frac{\sqrt{3} \times 351}{4}$ $= 151.8$	Solid state	-	√	-	
185	3	F <sub>2</sub> ; high E <sub>red</sub> <sup>0</sup> value	p-Block elements	√	-	-	
186	3	C <sub>2</sub> – sp C <sub>3</sub> – sp <sup>3</sup> C <sub>5</sub> – sp <sup>2</sup> C <sub>6</sub> – sp <sup>3</sup>	Organic chemistry some basic principles	-	√	-	
187	1	$\Delta G = \Delta H - T\Delta S$	Thermodynamics	-	√	-	

		$\text{At eqm., } T = \frac{\Delta H}{\Delta S} = \frac{170 \times 10^3 \text{ (J)}}{170 \text{ (J)}}$ $= 10^3 \text{ K}$ <p>Above 1000K, the reaction will be spontaneous.</p>					
188	3	Half filled extra stability	Classification of elements	-	√	-	
189	3	It is Friedel crafts alkylation reaction $\text{C}_6\text{H}_6 + \text{CH}_3\text{Cl} \xrightarrow{\text{anhy. AlCl}_3} \text{C}_6\text{H}_5\text{CH}_3$	Hydrocarbons	-	√	-	
190	1	$K = \frac{0.693}{t_{1/2}} = \frac{0.693}{1386}$ $= 0.5 \times 10^{-3} \text{ s}^{-1}$	Chemical kinetics	-	√	-	
191	3	Electron pair acceptors are Lewis acids. Boron is electron deficient. So $(\text{CH}_3)_3\text{B}$	p-block elements	-	√	-	
192	4	Neoprene is $-\text{[CH}_2 - \text{C(Cl) = CH - CH}_2 - \text{]}_n$	Polymers	-	√	-	
193	2	In $\text{BF}_3$ & $\text{NO}_2^-$ central atom is $\text{sp}^2$ hybridised	Chemical bonding	-	√	-	
194	3	But-2-ene exhibits geometrical isomerism	Hydrocarbons	-	√	-	
195	3	Kinetic energy per atom $= \frac{(4.4 - 4) \times 10^{-19}}{2} = 2 \times 10^{-20} \text{ J}$	Structure of atom	-	-	√	
196	1	It is manganese. Which exhibits +2, +4 and +7 oxidation state	d & f Block elements	-	√	-	
197	2	It is DDT	Haloalkanes and haloarenes	-	√	-	
198	3	$\frac{-d[\text{H}_2]}{dt} = \frac{3}{2} \frac{d[\text{NH}_3]}{dt}$ $= 3 \times 10^{-4} \text{ mol L}^{-1} \text{ s}^{-1}$	Chemical Kinetics	-	√	-	
199	2	$\text{CH}_2\text{OH} - \text{CH}_2\text{OH} \xrightarrow{\text{HIO}_4} 2\text{HCHO}$	Alcohols, phenols and ethers	-	√	-	
200	3	$\sqrt{2} a = 4r; \quad r = \frac{\sqrt{2} a}{4} = 128 \text{ pm}$	Solid state	-	√	-	