JEE EXPERT

ANSWER KEY

REGULAR TEST SERIES - (RTS-02)

Batch : 12TH Pass (Desire A01)

Date 21.07.2019

PHYSICS

1	**(D)**	**2**	**(A)**	**3**	**(B)**	**4**	**(A)**	**5**	**(D)**
6	**(B)**	**7**	**(B)**	**8**	**(D)**	**9**	**(A)**	**10**	**(C)**
11	**(A)**	**12**	**(A)**	**13**	**(D)**	**14**	**(B)**	**15**	**(A)**
16	**(D)**	**17**	**(B)**	**18**	**(C)**	**19**	**(D)**	**20**	**(B)**
21	**(C)**	**22**	**(D)**	**23**	**(C)**	**24**	**(B)**	**25**	**(D)**
26	**(C)**	**27**	**(A)**	**28**	**(B)**	**29**	**(D)**	**30**	**(B)**

CHEMISTRY

31	**(A)**	**32**	**(B)**	**33**	**(C)**	**34**	**(C)**	**35**	**(C)**
36	**(A)**	**37**	**(D)**	**38**	**(B)**	**39**	**(B)**	**40**	**(C)**
41	**(C)**	**42**	**(B)**	**43**	**(A)**	**44**	**(A)**	**45**	**(D)**
46	**(C)**	**47**	**(C)**	**48**	**(A)**	**49**	**(C)**	**50**	**(A)**
51	**(B)**	**52**	**(B)**	**53**	**(C)**	**54**	**(D)**	**55**	**(D)**
56	**(B)**	**57**	**(D)**	**58**	**(C)**	**59**	**(B)**	**60**	**(C)**

MATHEMATICS

61	**(C)**	**62**	**(C)**	**63**	**(D)**	**64**	**(B)**	**65**	**(A)**
66	**(D)**	**67**	**(C)**	**68**	**(D)**	**69**	**(A)**	**70**	**(D)**
71	**(C)**	**72**	**(C)**	**73**	**(A)**	**74**	**(C)**	**75**	**(A)**
76	**(B)**	**77**	**(C)**	**78**	**(A)**	**79**	**(A)**	**80**	**(A)**
81	**(C)**	**82**	**(D)**	**83**	**(A)**	**84**	**(B)**	**85**	**(C)**
86	**(B)**	**87**	**(D)**	**88**	**(B)**	**89**	**(C)**	**90**	**(A)**

JEE EXPERT

SOLUTIONS

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CHEMISTRY

31. **(A)** O.N. of Fe is + 1 : $x + 5(0) + 0 = +2$ or $x = +1$.

32. **(B)** Glycinato is an unsymmetrical bidentate ligand.

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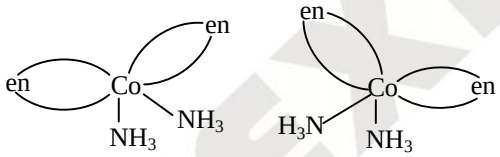
33. **(C)** These are coordination isomers.

34. **(C)** Small magnitude of charge on the central metal atom does not help in formation of stable complexes.

35. **(C)** cis-$[Co(NH_3)_2(en)_2]^{3+}$ can exhibit two enantiomeric forms as shown below.



36. **(A)** Two geometrical forms are possible.

37. **(D)** $[Pt(en)_2Cl_2]$ will show two geometcial forms and cis form will show optical isomerism.

38. **(B)** The compound is also known as cisplatin.

39. **(B)** II and III are optical isomers and not geometrical isomers.

40. **(C)** $Co(NO_2)_3 + 3KNO_2 \longrightarrow \underset{\text{Potassium cobaltinitrite}}{K_3[Co(NO_2)_6]}$

41. **(C)** $\underset{\text{blue}}{CuSO_4.5H_2O} \xrightarrow[\text{heating}]{\text{Strong}} \underset{\text{black}}{CuO} + SO_2 + \frac{1}{2}O_2 + 5H_2O$

42. **(B)** $ZnSO_3 \xrightarrow{\Delta} ZnO + SO_2$

ZnO is yellow when it is hot and white when it is cold.

$$Ba(OH)_2 + SO_2 \rightarrow \underset{\text{White ppt.}}{BaSO_3} + H_2O$$

$$K_2Cr_2O_7 + H_2SO_4 + 3SO_2 \rightarrow K_2SO_4 + \underset{\text{green}}{Cr_2(SO_4)_3} + H_2O$$

43. **(A)** Because $Zn(OH)_2$ is white ppt, but $Cu(OH)_2$ is water soluble.

44. **(A)** AgCl is white ppt.

45. **(D)** In this condition CuS can be precipitated, not the ZnS because the K_{sp} of ZnS is more than that of CuS.

46. **(C)**

47. **(C)**

48. **(A)**

49. **(C)** $NaNO_3 + 4Zn + 7NaOH \rightarrow 4Na_2ZnO_2 + NH_3 + 2H_2O$

50. **(A)** $Pb^{2+} + KI \rightarrow \underset{\text{yellow ppt.}}{PbI_2} + 2K^+$

51. **(B)**

52. **(B)**

53. **(C)** Since, $2r = \frac{a\sqrt{2}}{2}$ $\therefore$ $r = \frac{150}{2\sqrt{2}} = \frac{75}{\sqrt{2}}$ pm

54. **(D)** $7.5 \times 10^3 = \frac{\text{mass in a unit cell}}{(400 \times 10^{-12})^3}$

Mass in a unit cell = 480×10^{-27} kg

So, number of unit cells $= \frac{0.015}{480 \times 10^{-27}} = 3.125 \times 10^{22}$

55. **(D)** % Vacant space = 100 – % packing

$$= 100 - \frac{1 \times \frac{4}{3}\pi r^3}{a^3} \times 100$$

$$= 100 - \frac{1 \times \frac{4}{3}\pi r^3}{8r^3} \times 100$$

$= 100 - \frac{\pi}{6} \times 100$

56. **(B)** $Z_A = 1 + \frac{2}{2} = 2$ $Z_B = 8$ i.e. A_2B_8 i.e. AB_4

57. **(D)** $Z_{A^{+n}} = 1$ $Z_{B^{-m}} = 4 + 4 = 8$ y formula is AB_8

58. **(C)** The spinel structure consists of an FCC arrangement of O^{2-} ions in which the divalent cation occupies one-eight of the tetrahedral voids and trivalent cation occupies one-half of the octahedral voids.

59. **(B)**

60. **(C)** Number of oxide ions $= \frac{1}{8} \times 8$ corners $+ \frac{1}{2} \times 6$ face-centres = 4
Number of A^{2+} ions present in tetrahedral void = 1
Number of B^{3+} ions = 2
$\therefore$ Formula of compound = AB_2O_4