FIITJEE PET – I (EXTENDED)

MAINS

DATE: 21.07.2018

Time: 3 hours **Maximum Marks: 360**

INSTRUCTIONS:

Instructions to the Candidates

1. This Test Booklet consists of **90 questions**.

   Use **Blue/Black ball Point Pen only** for writing particulars and bubbling of OMR.

2. For each correct answer **4 Marks** will awarded and for each wrong answer **1 Mark** will be deducted.

3. Attempt all questions.

4. In case you have not darkened any bubble you will be awarded 0 mark for that question.

5. Use of calculator/logarithmic table is not permitted.

Don't write / mark your answers in this question booklet.
If you mark the answers in question booklet, you will not be allowed to continue the exam.

NAME: ☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐☐

ENROLLMENT NO.: ☐☐☐☐☐☐☐☐☐☐

1. The equation $x^2 + ax - a^2 - 1 = 0$ will have roots of opposite signs. The set of all values of a is
   (A) $a \in (-\infty, \infty)$ (B) $a \in [-1, 1]$ (C) $a \in (\infty, -1) \cup (1, \infty)$ (D) none of these

2. Total number of integral values of a such that $x^2 + ax + a + 1 = 0$ has integral roots is equal to
   (A) one (B) two (C) three (D) four

3. If $x^2 + 2(a - 1)x + a + 5 = 0$ has real roots belonging to interval (1, 3), then complete set of values of 'a' is
   (A) $\left(-\infty, -\frac{8}{7}\right)$ (B) (4, ∞) (C) $\left(-\infty, \frac{-48}{3}\right)$ (D) none of these

4. If $x^2 + 3x + 5 = 0$ and $ax^2 + bx + c = 0$ have a common root and $a, b, c \in N$, then minimum value of $a + b + c$ is equal to
   (A) 3 (B) 9 (C) 6 (D) 12

5. If $x^3 + ax + 1 = 0$ and $x^4 + ax^2 + 1 = 0$ have a common root, then complete set of value of a is
   (A) $(-\infty, 2)$ (B) $\{-2\}$ (C) $[-2, \infty)$ (D) none of these

6. Let $a, b, c \in R$ such that $2a - 3b + 6c = 0$. Then the quadratic equation $ax^2 + bx + c = 0$ has
   (A) at least one root in (0, 1) (B) at least one root in (–1, 0)
   (C) both roots in (1, 2) (D) imaginary roots

7. Roots of the quadratic equation $(x^2 - 4x + 3) + \lambda(x^2 - 6x + 8) = 0$, $\lambda \in R$ will be
   (A) always real (B) real only when λ is positive
   (C) real only when λ is negative (D) always imaginary

8. The roots of $x^2 - ax + b = 0$ differ by unity, then
   (A) $b^2 = 1 + 4a$ (B) $a^2 = 1 + 4b$ (C) $b^2 + 4a = 1$ (D) $a^2 + 4a = 1$

9. Let $p, q \in \{1, 2, 3, 4\}$. The number of equations of the form $px^2 + qx + 1 = 0$ having real and unequal roots is
   (A) 5 (B) 9 (C) 7 (D) none of these

Space for rough work

10. If $ax^2 - bx + c = 0$ has two distinct real roots in (0, 1) where a, b, $c \in N$, then $16c(a - b + c)$
(A) $= a^2$ (B) $< a^2$ (C) $> a^2$ (D) $\geq a^2$

11. For equation $x^3 - 6x^2 + 9x + k = 0$ to have exactly one root in (1, 3), the set of values of k is
(A) (–4, 0) (B) (1, 3) (C) (0, 4) (D) none of these

12. The values of a for which the quadratic equation $2x^2 - (a^3 + 8a - 1)x + a^2 - 4a = 0$ possess roots of opposite signs are given by
(A) $a > 0$ (B) $a > 5$ (C) $4 < a < 8.5$ (D) $0 < a < 4$

13. A students notices that the roots of the equation $x^2 + bx + a = 0$ are each 1 less than the roots of the equation $x^2 + ax + b = 0$, then $a + b =$
(A) possibly any real number (B) –2 (C) –4 (D) –5

14. If the roots of $ax^2 + bx + c = 0$ are both negative and $b < 0$, then
(A) $a < 0, c < 0$ (B) $a < 0, c > 0$ (C) $a > 0, c < 0$ (D) $a > 0, c > 0$

15. If $P(x) = ax^2 + bx + c$ and $Q(x) = -ax^2 + dx + c$, where $ac \neq 0$, then $P(x) \cdot Q(x) = 0$ has
(A) no real root (B) exactly two real roots
(C) at least two real distinct roots (D) none of these

16. If α, β, γ are the roots of the equation $x^3 + 2x^2 + 3x + 3 = 0$, then the value of $\left(\frac{\alpha}{\alpha+1}\right)^2 + \left(\frac{\beta}{\beta+1}\right)^2 + \left(\frac{\gamma}{\gamma+1}\right)^2$ is
(A) 14 (B) 44 (C) 45 (D) 15

17. The set of all values of $a \in R$ for which the equation $2x^2 - 2(2a + 1)x + a(a - 1) = 0$ has roots α and β satisfying $\alpha < a < \beta$ is
(A) $(-\infty, -3) \cup (0, \infty)$ (B) (–3, 0)
(C) $(-\infty, 0) \cup (3, \infty)$ (D) $\left(-\infty, \frac{-3-\sqrt{7}}{2}\right] \cup \left[\frac{-3+\sqrt{7}}{2}, \infty\right)$

Space for rough work

18. If the roots of the equation $x^2 + ax + b = 0$ are c and d, then one of the roots of the equation $x^2 + (2c + a)x + c^2 + ac + b = 0$ is
(A) c (B) d – c (C) 2c (D) 2d

19. If one root of the equation $ax^2 + bx + c = 0$ tends to infinity, then
(A) a = 0 (B) b = 0 (C) c = 0 (D) a = b = c = 0

20. If $x^2 + 3x + 5 = 0$ and $ax^2 + bx + c = 0$ have common root/roots and a, b, $c \in N$, then the minimum value of a + b + c is
(A) 9 (B) –9 (C) 3 (D) –3

21. For $a \neq b$ and $x \in R$, $x^2 - (a + b)x + a^2 - ab + b^2$
(A) ≥ 0 (B) > 0 (C) ≤ 0 (D) < 0

22. The number of real solutions of $|x|^2 - 3|x| + 2 = 0$ is
(A) 0 (B) 2 (C) 3 (D) 4

23. If $e^{\sin x} - e^{-\sin x} - 4 = 0$, then the equation has
(A) one real solution (B) two real solutions
(C) no real solution (D) infinitely many real solutions

24. If $a < b < c < d$, then the roots of the equation $(x - a)(x - c) + 2(x - b)(x - d) = 0$ are
(A) imaginary (B) real and equal (C) real and distinct (D) none of these

25. The equation $x - \frac{2}{x-1} = 1 - \frac{2}{x-1}$ has
(A) no root (B) one root (C) two roots (D) infinitely many roots

26. The number of real solutions of the equation $\sin(e^x) = 5^x + 5^{-x}$ is
(A) 0 (B) 1 (C) 2 (D) infinitely many

27. If the roots of the equation $x^2 - 2ax + a^2 + a - 3 = 0$ are real and less than 3, then
(A) $a < 2$ (B) $2 < a \leq 3$ (C) $3 < a \leq 4$ (D) $a > 4$

28. If α, β are two roots of the quadratic equation $x^2 - (a - 2)x - (a - 1) = 0$ where 'a' is variable, then the least value of $\alpha^2 + \beta^2$ is
(A) 1 (B) 3 (C) 5 (D) 6

Space for rough work

29. Roots of the equation $x^2 - \sqrt{5}x - 19 = 0$ are
(A) real, equal and rational (B) real, unequal and rational
(C) real, unequal and irrational (D) complex number

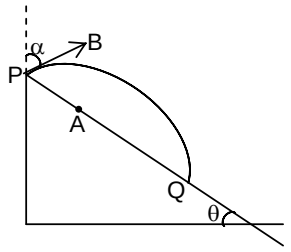
30. The real roots of the equation $5^{\log_5(x^2-4x+5)} = x - 1$ are
(A) 1 and 2 (B) 2 and 3 (C) 3 and 4 (D) 4 and 5

31. A particle is released from rest from a tower of height 3h. The ratio of times to fall equal heights h, i.e., $t_1 : t_2 : t_3$ is
(A) $\sqrt{3} : \sqrt{2} : 1$ (B) 3 : 2 : 1 (C) 9 : 4 : 1 (D) $1 : (\sqrt{2}-1) : (\sqrt{3}-\sqrt{2})$

32. In a car race car A takes t_0 time less to finish than car B and passes the finishing point with a velocity v_0 more than car B. The cars start from rest and travel with constant accelerations a_1 and a_2. Then the ratio $\frac{v_0}{t_0}$ is equal to
(A) $\frac{a_1^2}{a_2}$ (B) $\frac{a_1 + a_2}{2}$ (C) $\sqrt{a_1 a_2}$ (D) $\frac{a_2^2}{a_1}$

33. Acceleration of a particle is a for a time t. It is followed immediately by a retardation of a for time t/2. Consider this as one cycle. Initial velocity of particle was zero. The displacement of the particle after n such cycles in succession is
(A) $\frac{n(3n+4)}{8}at^2$ (B) $\frac{n(n+1)}{2}at^2$ (C) $\frac{(n^2+n+1)}{4}at^2$ (D) n a t^2

34. The particle A is projected from point P with velocity u along the plane and simultaneously another particle B with velocity u at an angle 'α' with vertical. The particles collide at point Q on the plane. Then
(A) $-\upsilon\sin(\theta-\alpha) = u$ (B) $\upsilon\cos(\theta-\alpha) = u$
(C) $\upsilon = u$ (D) $\tan(\theta-\alpha) = u$



Space for rough work

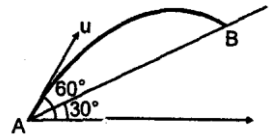
35. The speed of a projectile when it is at its greatest height is $\sqrt{\frac{2}{5}}$ times its speed at half the maximum height. Find the angle of projection

(A) $\frac{\pi}{3}$ (B) $\frac{\pi}{4}$ (C) $\frac{\pi}{6}$ (D) none of these

36. At a height 0.4m from the ground, the velocity of a projectile in vector form is $\vec{v} = \left(6\hat{i} + 2\hat{j}\right) m/s$ (the x-axis is horizontal and y-axis is vertically upwards). Find the angle of projection

(A) 75° (B) 60° (C) 30° (D) none of these

37. Time taken by the projectile to reach from A to B is t. Then the distance AB is



(A) $\frac{2ut}{\sqrt{3}}$ (B) $\frac{4ut}{\sqrt{3}}$ (C) $\frac{ut}{\sqrt{3}}$ (D) $\frac{\sqrt{3}ut}{2}$

38. With what minimum speed must a particle be projected from origin so that it is able to pass through a given point (30m, 40m). Take g = 10 m/s^2

(A) 100 m/s (B) 1000 m/s (C) 500 m/s (D) none of these

39. A projectile is projected at an angle α(>45°) with an initial velocity u. The time t, at which its horizontal velocity will equal the vertical velocity.

(A) $t = \frac{u}{g}(\cos\alpha - \sin\alpha)$ (B) $t = \frac{u}{g}(\cos\alpha + \sin\alpha)$

(C) $t = \frac{u}{g}(\sin\alpha - \cos\alpha)$ (D) $t = \frac{u}{g}(\sin^2\alpha - \cos^2\alpha)$

40. A ball is projected from ground with a speed of 20 m/s at an angle of 45^o with horizontal. There is a wall of 25 m height at a distance of 10 m from the projection point. The ball will hit the wall at a height of

(A) 5 m (B) 7.5 m (C) 10 m (D) 12.5 m

41. The x and y coordinates of a particle at any time t are given by $x = 7t + 4t^2$ and y = 5t, where x and y are in m and t in s. The acceleration of the particle at 5 s is

(A) zero (B) 8 m/s^2 (C) 20 m/s^2 (D) 40 m/s^2

Space for rough work

42. There are two values of time for which a projectile is at the same height. The sum of these two times is equal to (T = time of flight of the projectile)
(A) 3T/2 (B) 4T/3 (C) 3T/4 (D) T

43. A body is projected at an angle 60° with the horizontal with kinetic energy K. When the velocity makes an angle 30° with the horizontal, the kinetic energy of the body will be
(A) $\frac{K}{2}$ (B) $\frac{K}{3}$ (C) $\frac{2K}{3}$ (D) $\frac{3K}{4}$

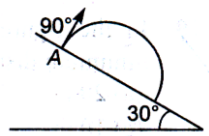
44. A body freely falling from the rest has a velocity 'v' after it falls through a height h. The distance it has to fall down for its velocity to become double, is
(A) 2h (B) 4h (C) 6h (D)8h

45. A shell fired from the ground is just able to cross horizontally the top of a wall 90 m away and 45 m high. The direction of projection of the shell will be
(A) 25° (B) 30° (C) 60° (D) 45°

46. A particle is projected with a certain velocity at an angle α above the horizontal from the foot of an inclined plane of inclination 30°. If the particle strikes the plane normally then α is equal to
(A) $30° + \tan^{-1}\left(\frac{\sqrt{3}}{2}\right)$ (B) $45° - \tan^{-1}\left(\frac{\sqrt{3}}{2}\right)$ (C) $60° - \tan^{-1}\left(\frac{\sqrt{3}}{2}\right)$ (D) $30° + \tan^{-1}(2\sqrt{3})$

47. At any instant a projectile is moving with velocity *u* in a direction making an angle α with horizon. After what time the direction of motion turns through an angle θ?
(A) $\frac{u\cos\theta}{g\sin(\theta-\alpha)}$ (B) $\frac{u\sin\theta}{g\cos(\theta-\alpha)}$ (C) $\frac{u}{g\sin(\theta-\alpha)}$ (D) $\frac{u}{g\cos(\theta-\alpha)}$

48. A ball is projected from point A with velocity 10 ms^{-1} perpendicular to the inclined plane as shown in figure. Range of the ball on the inclined plane is



(A) $\frac{40}{3}$ m (B) $\frac{20}{3}$ m (C) $\frac{12}{3}$ m (D) $\frac{60}{3}$ m

49. A body is dropped from a height 39.2 m. After it crosses half distance, the acceleration due to gravity ceases to act. The body will hit the ground with velocity (take g = 10 m/s^2)
(A) 19.6 m/s (B) 20 m/s (C) 1.96 m/s (D) 196 m/s

Space for rough work

50. A ball is thrown from the top of a tower in vertically upward direction. Velocity at a point h m below the point of projection is twice of the velocity at a point h m above the point of projection. Find the maximum height reached by the ball above the top of tower.

(A) 2h (B) 3h (C) $\left(\frac{5}{3}\right)$h (D) $\left(\frac{4}{3}\right)$h

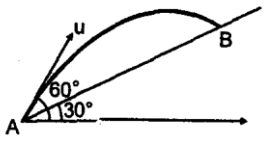
51. A parachutist after bailing out falls 50 m without friction. When parachute opens, it decelerates at 2 m/s^2. He reaches the ground with a speed of 3 m/s. At what height did he bail out?

(A) 111 m (B) 293 m (C) 182 m (D) 91 m

52. A particle is projected vertically upwards from a points A on the ground. It takes time t_1 to reach a point B, but it still continues to move up. If it takes further t_2 time to reach the ground from point B. Then height of point B from the ground is

(A) $\frac{1}{2}g(t_1+t_2)^2$ (B) $g\,t_1\,t_2$ (C) $\frac{1}{8}g(t_1+t_2)^2$ (D) $\frac{1}{2}g\,t_1\,t_2$

53. Time taken by the projectile to reach from A to B is t. Then the distance AB is



(A) $\frac{2ut}{\sqrt{3}}$ (B) $\frac{4ut}{\sqrt{3}}$ (C) $\frac{ut}{\sqrt{3}}$ (D) $\frac{\sqrt{3}ut}{2}$

54. A grasshopper can jump maximum distance 1.6 m. It spends negligible time on the ground. How far can it go in 10 seconds?

(A) $5\sqrt{2}$ m (B) $10\sqrt{2}$ m (C) $20\sqrt{2}$ m (D) $40\sqrt{2}$ m

55. A person can thrown a stone a maximum height of h meter. The maximum distance to which he can throw the stone is

(A) h (B) h/2 (C) 2h (D) 3 h

56. From a point on the ground a particle is projected with initial velocity u, such that its horizontal range is maximum. Find the magnitude of average velocity during its descent.

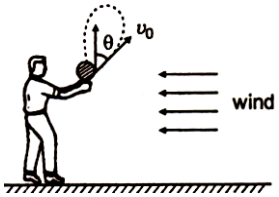
(A) $\frac{\sqrt{5}u}{\sqrt{2}}$ (B) $\frac{2\sqrt{5}u}{\sqrt{2}}$ (C) $\frac{\sqrt{5}u}{2}$ (D) $\frac{\sqrt{5}u}{2\sqrt{2}}$

57. A point moves in the plane x–y according to the law x = 4 sin 2t and y = 4(1 – cos 2t) where k and ω are positive constants. Find the distance s traversed by the particle during time 5 s.

(A) 10 m (B) 20 m (C) 40 m (D) 120 m

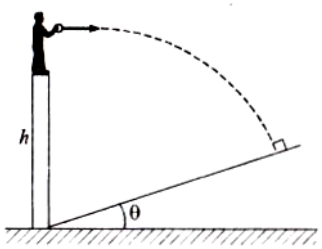
Space for rough work

58. A boy throws a ball upwards with velocity v_0 as shown in fig. The wind imparts a horizontal acceleration of 4 m/s^2 to the left. The angle at which the ball must be thrown so that the ball returns to the boy's hand is (g = 10 m/s^2)



(A) $\tan^{-1}\left(\frac{5}{2}\right)$ (B) $\tan^{-1}\left(\frac{2}{5}\right)$ (C) $\tan^{-1}\left(\frac{3}{4}\right)$ (D) $\tan^{-1}\left(\frac{4}{3}\right)$

A particle is thrown in horizontal direction with speed u from a point P, the top of a tower shown in figure at vertical height h above the inclined plane of inclination θ ..



59. Find the speed with which the particle is thrown so that it strikes the plane normally

(A) $\left[\sqrt{\frac{2gh}{2+\cot^2\theta}}\right]$ (B) $\left[\sqrt{\frac{gh}{1+\cot^2\theta}}\right]$

(C) $\left[\sqrt{\frac{2gh}{2+\tan^2\theta}}\right]$ (D) None of these

60. Also find the distance from the foot of the tower where the particle will strike

(A) $\left[\frac{h}{\sin\theta\left(1+\cot^2\theta\right)}\right]$ (B) $\left[\frac{2h}{\sin\theta\left(2+\cot^2\theta\right)}\right]$

(C) $\left[\frac{h}{\sin\theta\left(1+\tan^2\theta\right)}\right]$ (D) None of these

61. How many moles of $Al_2(SO_4)_3$ contains 6.023 x 10^{23} atoms of oxygen ?

(A) 12 (B) 1 (C) $\frac{1}{12}$ (D) 3

Space for rough work

62. 1 mole of Glucose ($C_6H_{12}O_6$) consists of
(A) 6 gram molecules of H_2 (B) 6 gram atoms of carbon
(C) 12 gram atoms of Hydrogen (D) All of these

63. Which of the following contains the greatest number of atoms,
(A) 1g of butane (C_4H_{10}) (B) 1g of Nitrogen (N_2)
(C) 1g of silver (Ag) (D) 1g of water (H_2O)

64. Which of the following is a redox reaction ?
(A) $NaCl + KNO_3 \rightarrow NaNO_3 + KCl$ (B) $CaC_2O_4 + 2HCl \rightarrow CaCl_2 + H_2C_2O_4$
(C) $Mg(OH)_2 + 2NH_4Cl \rightarrow MgCl_2 + 2NH_4OH$ (D) $Zn + 2ACn \rightarrow 2Ag + Zn(CN)_2$

65. In which of the following reactions, SO_2 behaves as an oxidizing agent ?
(A) $Cl_2 + SO_2 \rightarrow SO_2Cl_2$ (B) $2H_2S + SO_2 \rightarrow 3S + 2H_2O$
(C) $SO_2 + H_2O \rightarrow H_2SO_3$ (D) All the above

66. 1.12g of CaO is reacted with excess of HCl and 0.555g of $CaCl_2$ is formed. The % yield of product is
(A) 25% (B) 75% (C) 50% (D) 60%

67. How many moles of electron weigh one kilogram ? (mass of an electron is 9.1×10^{-28}g)
(A) 6.023×10^{23} (B) $\frac{10^{31}}{9.1}$ (C) $\frac{1.023}{9.1} \times 10^{54}$ (D) $\frac{10^{8}}{9.1 \times 6.023}$

68. Chlorophyll contains 2% by mass of Mg. The number of Mg atoms in 2g of chlorophyll is
(A) 10^{23} (B) $0.04 \times N_A$ (C) 10^{21} (D) $24\ N_A$

69. At STP the density of CO_2 vapour in g/L will be equal to
(A) 22 (B) 44 (C) 0.98 (D) 1.96

70. The hydrated salt $Na_2CO_3.xH_2O$ undergoes 46% loss is mass on heating and becomes anhydrous. The value of 'x' is
(A) 3 (B) 5 (C) 7 (D) 10

71. A gas is found to have the formula $(CO)_x$. Its V.D. is 70. The value of x must be
(A) 7 (B) 4 (C) 5 (D) 6

Space for rough work

72. If 1 mole of ozone (O_3) is removed from a sample weighting 144g; then the number of gram molecules of ozone left is
(A) 2.5 (B) 2 (C) 2.9 (D) 1.5

73. Number of molecules present in a drop of water, if its volume is 0.05 ml are:-
(A) 1.66×10^{21} (B) 1.66×10^{22} (C) 1.66×10^{23} (D) 1.66×10^{24}

74. Which is NOT correct match ?

Compound	Oxidation state in underlined elements
(A) $\underline{N}H_4\underline{N}O_3$	–3, +5
(B) $CaO\underline{Cl}_2$	–1, +1
(C) $\underline{Cr}O_5$	+ 10
(D) $Na\underline{H}$	–1

75. The molarity of NO_3^- ion in the solution after 2.0 L of 3M $AgNO_3$ is mixed with 3L of 1.0 M $BaCl_2$ is
(A) 1.6 M (B) 1.2 M (C) 3.0 M (D) 1.0 M

76. The oxidation number of C in FeC_2O_4 is
(A) +1 (B) +2 (C) +4 (D) +3

77. Which of the following have been arranged in order of decreasing oxidation number sulphur
(A) $H_2S_2O_7 > Na_2S_4O_6 > Na_2S_2O_3 > S_8$ (B) $SO^{2+} > SO_4^{2-} > SO_3^{2-} > HSO_4^-$
(C) $H_2SO_5 > H_2SO_4 > SCl_2 > H_2S$ (D) $H_2SO_4 > SO_2 > H_2S > H_2S_2O_8$

78. The amount of $KClO_3$ (80% pure) needed to produce 48g O_2 is ?
($KClO_3 \rightarrow KCl + O_2$)
(A) 122.5 (B) 24.5 (C) 98 (D) 153.12g

79. Two elements P and Q form the compounds P_2Q_3 and PQ_2. If 0.15 mole of P_2Q_3 weighs 15.9 gr and 0.15 mole of PQ_2 weighs 9.3g, then the atomic weights of P and Q are respectively
(A) 24 and 18 (B) 24 and 20 (C) 26 and 18 (D) 26 and 20

80. The Eq. Wt. of $KMnO_4$ in acidic medium is
(M = mol. Wt. of $KMnO_4$)
(A) $\frac{M}{2}$ (B) $\frac{M}{3}$ (C) $\frac{M}{4}$ (D) $\frac{M}{5}$

Space for rough work

81. How many g of glucose be dissolved to make one litre solution of 10% glucose ?
(A) 10g (B) 180g (C) 100g (D) 1.8g

82. Which of the following has maximum no. of ions when present in 1 lit of the solution?
(A) 0.1 mole of $Ba(NO_3)_2$ (B) 0.1 mole of AlF_3
(C) 0.1 mole of $CaSO_4$ (D) 0.1 mole of $MgBr_2$

83. Mole fraction of solute in aqueous HCl solution is 0.2. The molality of HCl solution is
(A) 13.88 (B) 1.388 (C) 0.138 (D) 0.0138

84. Nitrogen has lowest oxidation state in
(A) N_3H (B) NH_3 (C) N_2H_4 (D) HNO_3

85. The molar ratio of Fe^{+2} to Fe^{+3} ions in a mixture of $FeSO_4$ and $Fe_2(SO_4)_3$ having equal number of sulphate ions in both ferrous and ferric sulphate
(A) 1 : 2 (B) 3 : 2 (C) 2 : 3 (D) None of these

86. If 4.2 gm of $NaHCO_3$ is added to 10 gms of CH_3COOH solution. The weight of aqueous solution is 12 gm. The mass of CO_2 released in the reaction
($CH_3COOH + NaHCO_3 \rightarrow CH_3COONa + H_2O + CO_2 \uparrow$) is
(A) 12 gm (B) 2.2 gm (C) 14.2 gm (D) 3.3 gm

87. 38% $\left(\frac{w}{W}\right)$ solution of HCl has density equal to 1.2 g/ml. The molality and molarity respectively are
(A) 12.49, 16.79 (B) 16.79 , 12.49 (C) 12.49, 12.2 (D) 16.79, 16.79

88. The formula of a hydrated salt of barium is $BaCl_2.XH_2O$. If 1.9369g of this compound gives 1.8469g anhydrous $BaSO_4$ on treatment with H_2SO_4, the value of X is : (At. Wt. Ba = 137)
(A) 7 (B) 5 (C) 3 (D) 2

89. The ratio of masses of oxygen and nitrogen in a particular gaseous mixture is 1 : 4. The ratio of number of their molecule is :
(A) 1 : 4 (B) 7 : 32 (C) 1 : 8 (D) 3 : 14

90. For the redox reactions : $Cr_2O_7^{2-} + I^- + H^+ \rightarrow Cr^{3+} + I_2 + H_2O$, the correct co–efficients of the reactants for the balanced equation are

	$Cr_2O_7^{2-}$	I^-	H^+
(A)	1	3	14
(B)	1	6	14
(C)	2	6	14
(D)	1	6	7

Space for rough work

FIITJEE PET – I (EXTENDED)

MAINS_ANSWERS

DATE: 21.07.2018

MATHEMATICS

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

PHYSICS

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

CHEMISTRY

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