

FIITJEE RET – 1

EXTENDED_2019

IIT-2017 (P1)

DATE: 16.07.2018

Time: 3 hours

Maximum Marks: 183

INSTRUCTIONS:

A. General

1. This booklet is your Question Paper containing 54 questions.
2. Blank papers, clipboards, log tables, slide rules, calculators, cellular phones, pagers and electronic gadgets in any form are not allowed to be carried inside the examination hall.
3. Fill in the boxes provided for Name and Enrolment No.
4. The answer sheet, a machine-readable Objective Response (ORS), is provided separately.
5. DO NOT TAMPER WITH / MULTILATE THE ORS OR THE BOOKLET.

B. Filling in the OMR:

6. The instructions for the OMR sheet are given on the OMR itself.

C. Question paper format & Marking Scheme

7. Each part has three sections as detailed in the following table:

Section	Question Type	Number of Questions	Category wise Marks Each Question				Maximum marks of the section
			Full Marks	Partial Marks	Zero Marks	Negative Marks	
1	One or more correct option (s)	7	+4 If only the bubble(s) corresponding to all the correct option(s) is(are) darkened	+1 For darkening a bubble corresponding to each correct option, provided NO incorrect option is darkened	0 If none of the bubbles is darkened	-2 In all other cases	28
2	Single digit integer (0–9)	5	+3 If only the bubble corresponding to the correct answer is darkened.	—	0 In all other cases	—	15
3	Single correct option	6	+3 If only the bubble corresponding to the correct option is darkened	—	0 If none of the bubbles is darkened	-1 In all other cases	18

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.:

PAPER-I
PART I: PHYSICS
SECTION 1 (Maximum Marks: 28)

- * This section contains **SEVEN** questions.
- * Each question has **FOUR** options (A), (B), (C) and (D). **ONE OR MORE THAN ONE** of these four options is(are) correct.
- * For each question, darken the bubble(s) corresponding to all the correct option(s) in the ORS
- * For example, if (A), (C) and (D) are all the correct options for a question, darkening all these three will get +4 marks; darkening only (A) and (D) will get +2 marks; and darkening (A) and (B) will get -2 marks, as a wrong option is also darkened.

1. Two vectors \vec{A} and \vec{B} have magnitudes 2 and $2\sqrt{2}$ respectively. It is found that $\vec{A} \cdot \vec{B} = |\vec{A} \times \vec{B}|$, then the value of $\left| \frac{\vec{A} + \vec{B}}{\vec{A} - \vec{B}} \right|$ will be.
 (A) 5 (B) $\sqrt{5}$ (C) $\frac{\sqrt{2}+1}{\sqrt{2}-1}$ (D) $\frac{\sqrt{2}-1}{\sqrt{2}+1}$
2. The vector $(\vec{a} + 3\vec{b})$ is perpendicular to $(7\vec{a} - 5\vec{b})$ and $(\vec{a} - 4\vec{b})$ is perpendicular to $(7\vec{a} - 2\vec{b})$. Find the angle between \vec{a} & \vec{b} .
 (A) 30° (B) 90° (C) 60° (D) 150°
3. Two different vectors \vec{a} and \vec{b} of same magnitude are lying in x- y plane. Their projection on vector $\hat{i} + \hat{j}$ is equal. Vector \vec{a} is $3\hat{i} + 4\hat{j}$ then find vector \vec{b}
 (A) $\vec{b} = 4\hat{i} - 3\hat{j}$ (B) $\vec{b} = 4\hat{i} + 3\hat{j}$
 (C) $\vec{b} = 5\hat{i}$ (D) $\vec{b} = 3\hat{i} - 4\hat{j}$
4. Given $\vec{A} = 2\hat{i} + 3\hat{j}$ and $\vec{B} = \hat{i} + \hat{j}$. The component of vector \vec{A} along vector \vec{B} is
 (A) $\frac{1}{\sqrt{2}}(\hat{i} + \hat{j})$ (B) $\frac{3}{\sqrt{2}}(\hat{i} + \hat{j})$
 (C) $\frac{5}{\sqrt{2}}(\hat{i} + \hat{j})$ (D) $\frac{7}{\sqrt{2}}(\hat{i} + \hat{j})$

Space for rough work

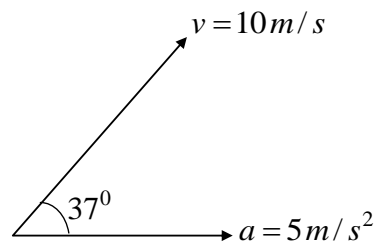
5. The components of a vector along the x –and y –directions are (n+1) and 1, respectively. if the coordinate system is rotated by an angle $\theta = 60^\circ$, then the components change to n and 3. The value of n is
 (A) 2 (B) $\cos 60^\circ$ (C) $\sin 60^\circ$ (D) 3.5
6. If $\vec{A} = 2\hat{i} + \hat{j} + \hat{k}$ and $\vec{B} = \hat{i} + \hat{j} + \hat{k}$ are two vectors then the unit vector
 (A) perpendicular to \vec{A} is $\left(\frac{-\hat{j} + \hat{k}}{\sqrt{2}}\right)$ (B) parallel to \vec{A} is $\left(\frac{2\hat{i} + \hat{j} + \hat{k}}{\sqrt{6}}\right)$
 (C) perpendicular to \vec{B} is $\left(\frac{-\hat{j} + \hat{k}}{\sqrt{2}}\right)$ (D) parallel to \vec{A} is $\left(\frac{\hat{i} + \hat{j} + \hat{k}}{\sqrt{3}}\right)$
7. If $\vec{A}, \vec{B}, \vec{C}$ are mutually perpendicular vectors then which of the following statements is wrong ?
 (A) $\vec{C} \times (\vec{A} \times \vec{B}) = 0$ (B) $\frac{\vec{A} \times \vec{B}}{|\vec{A} \times \vec{B}|} = \frac{\vec{C}}{|\vec{C}|}$
 (C) $\vec{A} \cdot \vec{B} = \vec{B} \cdot \vec{C} = \vec{C} \cdot \vec{A} = 0$ (D) $(\vec{B} + \vec{C})$ is perpendicular to \vec{A}

SECTION 2 (Maximum Marks: 15)

- * This section contains **FIVE** questions.
- * The answer to each question is a **SINGLE DIGIT INTEGER** ranging from 0 to 9, both inclusive.
- * For each question, darken the bubble corresponding to the correct integer the ORS.

8. It is known that $|\vec{a}| = |\vec{b}| = |\vec{c}| = 1$ and $\vec{a} + \vec{b} + \vec{c} = 0$. then $\frac{\vec{a} \cdot \vec{b} + \vec{b} \cdot \vec{c} + \vec{c} \cdot \vec{a}}{3} = -\frac{n}{2}$. calculate the value of 'n'?

9. The ratio of component of velocity along acceleration to the component of acceleration along velocity is _____ seconds.

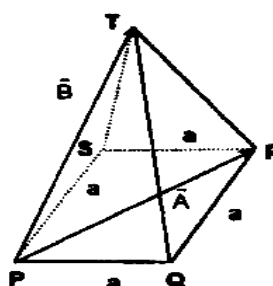


10. If $\vec{A} = 2t\hat{i} - t^2\hat{j} + t^3\hat{k}$ and $\vec{B} = t^2\hat{i} - t\hat{j} + \hat{k}$, if $\frac{d}{dt}(\vec{A} \cdot \vec{B}) = 2x$ at $t = 1$ sec. Find the value of x.

Space for rough work

11. If maximum value of $|\vec{A} + \vec{B}|$ is 25 and minimum value of $|\vec{A} + \vec{B}|$ is 5, then it is found that $3|\vec{A}| = k|\vec{B}|$ then find the value of k. (given that $|\vec{A}| < |\vec{B}|$)

12. Figure shows a pyramid PQRST of square base of side a. Pyramid is constructed such that $PT=QT=RT=ST$. \vec{A} and \vec{B} ($\vec{PR} = \vec{A}, \vec{PT} = \vec{B}$). No further information is available. If $\vec{A} \cdot \vec{B} = na^2$. Find n.



SECTION 3 (Maximum Marks: 18)

- * This section contains **SIX** questions of matching type.
- * This section contains **TWO** tables (each having 3 columns and 4 rows)
- * Based on the table, there are **THREE** questions
- * Each question has **FOUR** options (A), (B), (C) and (D). **ONLY ONE** of these four options is correct.
- * For each question, darken the bubble corresponding to the correct option in the ORS.

In Column – 1 represents \vec{A} , Column – 2 represents \vec{B} , Column- 3 represents a vector \vec{C} which is perpendicular to both \vec{A} and \vec{B}

Column 1 \vec{A}	Column 2 \vec{B}	Column 3 \vec{C}
(I) $\hat{i} + \hat{j}$	(i) $\hat{j} + \hat{k}$	(P) $-\hat{i} - \hat{j} + \hat{k}$
(II) $\hat{i} + \hat{j} + \hat{k}$	(ii) $\hat{i} + \hat{j}$	(Q) $\hat{i} - \hat{j} + \hat{k}$
(III) $2\hat{i} + \hat{j}$	(iii) $\hat{i} + \hat{j} - \hat{k}$	(R) $-\hat{i} + \hat{j}$
(IV) $\hat{i} + \hat{k}$	(iv) $\hat{i} + \hat{j} + 2\hat{k}$	(S) $\hat{i} - 2\hat{j} + \hat{k}$

13. Which of the following is a correct combination
 (A) I \rightarrow i \rightarrow P (B) I \rightarrow i \rightarrow Q (C) I \rightarrow i \rightarrow R (D) I \rightarrow i \rightarrow S
14. Which of the following is a correct combination
 (A) II \rightarrow ii \rightarrow P (B) II \rightarrow ii \rightarrow Q (C) II \rightarrow ii \rightarrow R (D) II \rightarrow ii \rightarrow S
15. Which of the following is a correct combination
 (A) III \rightarrow iii \rightarrow P (B) III \rightarrow iii \rightarrow Q (C) III \rightarrow iii \rightarrow R (D) III \rightarrow iii \rightarrow S

Space for rough work

Ball of mass 20 kgs moving with speed u_1 collides with a ball of mass m_2 . After the collision, 20kg ball moves at an angle θ to its initial velocity. For all possible types of collision find the minimum velocity of the second ball.

In Column – 1 represents mass of the second ball

Column – 2 represents initial speed of the first ball

Column- 3 represents angle between initial and final velocities of first ball

Column 1 m_2 (in kgs)	Column 2 u_1 (m/s)	Column 3 θ
(I) 1	(i) 1	(P) 30°
(II) 2	(ii) 2	(Q) 37°
(III) 3	(iii) 3	(R) 53°
(IV) 4	(iv) 4	(S) 45°

16. In which of the following case the minimum velocity of the second ball is 10 m/s
 (A) I \rightarrow i \rightarrow P (B) I \rightarrow i \rightarrow Q (C) I \rightarrow i \rightarrow R (D) I \rightarrow i \rightarrow S
17. In which of the following case the minimum velocity of the second ball is 12 m/s
 (A) II \rightarrow ii \rightarrow P (B) II \rightarrow ii \rightarrow Q (C) II \rightarrow ii \rightarrow R (D) II \rightarrow ii \rightarrow S
18. In which of the following case the minimum velocity of the second ball is 16 m/s
 (A) III \rightarrow iii \rightarrow P (B) III \rightarrow iii \rightarrow Q (C) III \rightarrow iii \rightarrow R (D) III \rightarrow iii \rightarrow S

PART II: CHEMISTRY

SECTION 1 (Maximum Marks: 28)

- * This section contains **SEVEN** questions.
- * Each question has **FOUR** options (A), (B), (C) and (D). **ONE OR MORE THAN ONE** of these four options is(are) correct.
- * For each question, darken the bubble(s) corresponding to all the correct option(s) in the ORS
- * For example, if (A), (C) and (D) are all the correct options for a question, darkening all these three will get +4 marks; darkening only (A) and (D) will get +2 marks; and darkening (A) and (B) will get -2 marks, as a wrong option is also darkened.

19. 18g of H_2O has the same number of electrons as
 (A) 20g of calcium (B) 2 moles of boron
 (C) 0.5 mole of CO_2 (D) 11.2 L of NH_3
20. Calculate the weight of $KClO_3$ required to liberate 33.6 lit of O_2 at STP ?
 $2KClO_3 \rightarrow 2KCl + 3O_2$
 (A) 1 g atom of $KClO_3$ (B) 138.5 gm (C) 12.25 gm (D) 122.5 gm of $KClO_3$

Space for rough work

21. How much N_2F_4 is obtained when 4gm of NH_3 is reacted with 14gm of F_2 .
 $2NH_3 + 5F_2 \rightarrow N_2F_4 + 6HF$
 (A) 7.66 gm (B) NH_3 limiting (C) F_2 limiting (D) 8gm
22. 54gm of an element 3rd period and IIIA group contains
 (A) $26 N_A$ protons (B) $26 N_A$ electrons
 (C) $26 N_A$ neutrons (D) $2 N_A$ atoms
23. Which of the following is /are redox reaction
 (A) $CaCO_3 \longrightarrow CaO + CO_2$ (B) $2H_2 + O_2 \longrightarrow 2H_2O$
 (C) $Na + H_2O \longrightarrow NaOH + \frac{1}{2} H_2$ (D) $MnCl_3 \longrightarrow MnCl_2 + \frac{1}{2} Cl_2$
24. The oxidation number of C is zero in
 (A) HCHO (B) CH_2Cl_2 (C) $C_6H_{12}O_6$ (D) $C_{12}H_{22}O_{11}$
25. Calculate the amount of lime that can be produced by heating 100 g of 90% pure limestone :
 (A) 50.4 g (B) 0.98 mole (C) 0.9 mole (D) 56 g

SECTION 2 (Maximum Marks: 15)

- * This section contains **FIVE** questions.
- * The answer to each question is a **SINGLE DIGIT INTEGER** ranging from 0 to 9, both inclusive.
- * For each question, darken the bubble corresponding to the correct integer the ORS.

26. The mass of CO_2 formed by the decomposition of 1g $CaCO_3$ is x. Then the value of 7x is
27. The percentage of hydration in $(Na_2SO_4 \cdot xH_2O ; M.wt. = 214)$ is 33.6% what is the value of x.
28. The mass of carbon present in 0.5 mole of $K_4[Fe(CN)_6]$ is 'x'. Then $\frac{x}{9}$ is.
29. 2.76gm of silver carbonate on being heated a residue weighing is x, then the value of $(x - 0.16)$ is ..
30. Consider the following reaction :
 $xMnO_4^- + yC_2O_4^{2-} + zH^+ \rightarrow xMn^{2+} + 2yCO_2 + \frac{z}{2}H_2O$
 The values of x, y and z in the reaction are, respectively : Then the value of $(x+y)$ is

Space for rough work

SECTION 3 (Maximum Marks: 18)

- * This section contains **SIX** questions of matching type.
- * This section contains **TWO** tables (each having 3 columns and 4 rows)
- * Based on the table, there are **THREE** questions
- * Each question has **FOUR** options (A), (B), (C) and (D). **ONLY ONE** of these four options is correct.
- * For each question, darken the bubble corresponding to the correct option in the ORS.

Column 1		Column 2		Column 3	
(I)	Molarity	(i)	0.365% (w/w) HCl $d_{\text{HCl}} = 1\text{gm/ml}$	(P)	0.1 N
(II)	Molality	(ii)	9.8% (w/w) H_2SO_4 $d_{\text{H}_2\text{SO}_4} = 1.02\text{g/ml}$	(Q)	0.1 M
(III)	Molefraction	(iii)	Temperature dependent	(R)	1.02 M
(IV)	Normality	(iv)	Independent of temperature	(S)	2.02 N
				(T)	On dilution decreases

31. The only CORRECT combination for molarity
 (A) (I) (i) (Q) (B) (I) (ii) (P) (C) (I) (iii) (P) (D) (I) (iv) (R)
32. The only INCORRECT combination.
 (A) (I) (ii) (R) (B) (IV) (ii) (P) (C) (IV) (i) (P) (D) (IV) (ii) (S)
33. The only CORRECT combination is
 (A) (I) (iii) (T) (B) (ii) (iii) (T) (C) (II) (iii) (S) (D) III (IV) (T)

Space for rough work

Column 1 (compounds)		Column 2 (Average oxidation number)		Column 3 (Oxidation state of element)	
(I)	Tetrathionate ion	(i)	4/3	(P)	+2, +2, 0
(II)	Carbon suboxide	(ii)	16/3	(Q)	+6
(III)	Tribromo- octaoxide	(iii)	6	(R)	+5, +5, 0, 0
(IV)	Compound with butterfly structure	(iv)	2.5	(S)	+6, +6, +4

34. The only CORRECT combination for tetrathionate ion is
 (A) (I) (i) (P) (B) (I) (iv) (R) (C) (I) (iii) (D) (D) (I) (ii) (Q)
35. The only INCORRECT combination.
 (A) (II) (i) (P) (B) (III) (ii) (S) (C) (IV) (iii) (Q) (D) (I) (iv) (S)
36. The only CORRECT combination for the species which do not contain fractional average oxidation number.
 (A) (IV) (iii) (P) (B) (ii) (iii) (S) (C) (IV) (iii) (Q) (D) (I) (iii) (R)

PART III: MATHEMATICS

SECTION 1 (Maximum Marks: 28)

- * This section contains **SEVEN** questions.
- * Each question has **FOUR** options (A), (B), (C) and (D). **ONE OR MORE THAN ONE** of these four options is(are) correct.
- * For each question, darken the bubble(s) corresponding to all the correct option(s) in the ORS
- * For example, if (A), (C) and (D) are all the correct options for a question, darkening all these three will get +4 marks; darkening only (A) and (D) will get +2 marks; and darkening (A) and (B) will get -2 marks, as a wrong option is also darkened.

37. The number of positive integral values of k for which $(16x^2 + 12x + 39) + k(9x^2 - 2x + 11)$ is a perfect square is
 (A) two (B) zero (C) one (D) none of these

Space for rough work

38. The quadratic equation $x^2 - 2x - \lambda = 0$, $\lambda \neq 0$,
 (A) cannot have a real root if $\lambda < -1$
 (B) can have a rational root if λ is a perfect square
 (C) cannot have an integral root if $n^2 - 1 < \lambda < n^2 + 2n$ where $n = 0, 1, 2, 3, \dots$
 (D) none of these
39. If a, b, c are positive rational numbers such that $a > b > c$ and the quadratic equation $(a + b - 2c)x^2 + (b + c - 2a)x + (c + a - 2b) = 0$ has a root in the interval $(-1, 0)$, then
 (A) $b + c > a$
 (B) $c + a < 2b$
 (C) both roots of the given equation are rational
 (D) the equation $ax^2 + 2bx + c = 0$ has both negative real roots
40. If a, b, c are rational and no two of them are equal, then the equations $(b - c)x^2 + (c - a)x + (a - b) = 0$ and $a(b - c)x^2 + b(c - a)x + c(a - b) = 0$
 (A) have rational roots (B) will be such that at least one has rational roots
 (C) have exactly one root common (D) have at least one root common
41. If α, β are the roots of $ax^2 + bx + c = 0$ and $\alpha + h, \beta + h$ are the roots of $px^2 + qx + r = 0$, then
 (A) $h = \frac{1}{2} \left(\frac{b}{a} - \frac{q}{p} \right)$ (B) $\frac{b^2 - 4ac}{a^2} = \frac{q^2 - 4pr}{p^2}$ (C) $\frac{a}{p} = \frac{b}{q} = \frac{c}{r}$ (D) none of these
42. If α, β are the real roots of $x^2 + px + q = 0$ and α^4, β^4 are the roots of $x^2 - rx + s = 0$, then the equation $x^2 - 4qx + 2q^2 - r = 0$, has always
 (A) two real roots (B) two negative roots
 (C) two positive roots (D) one positive root and one negative root
43. The graph of the curve $x^2 = 3x - y - 2$ is
 (A) between the lines $x = 1$ and $x = \frac{3}{2}$ (B) between the lines $x = 1$ and $x = 2$
 (C) strictly below the line $4y = 1$ (D) none of these

Space for rough work

SECTION 2 (Maximum Marks: 15)

- * This section contains **FIVE** questions.
 - * The answer to each question is a **SINGLE DIGIT INTEGER** ranging from 0 to 9, both inclusive.
 - * For each question, darken the bubble corresponding to the correct integer the ORS.
-

44. The complex numbers $1 + i$ and $1 + 2i$ are both roots of the equation $x^5 - 6x^4 + Ax^3 + Bx^2 + Cx + D = 0$, where $A, B, C, D \in \mathbb{R}$. The value of $\left\lfloor \frac{D}{4} \right\rfloor$ is
45. Let S be a square of unit area. Consider any quadrilateral which has one vertex on each side of S . If a, b, c and d denote the lengths of the sides of the quadrilateral, then the greatest value of $a^2 + b^2 + c^2 + d^2$ is
46. If the equations $ax^2 + bx + c = 0$ and $cx^2 + bx + a = 0$, $a \neq c$ have a negative common root, then the value of $a - b + c$ is
47. The number of integral values of a for which $x^2 - (a - 1)x + 3 = 0$ has both roots positive and $x^2 + 3x + 6 - a = 0$ has both roots negative is
48. The number of irrational roots of the equation $4x(x^2 + x + 3) + 5x(x^2 - 5x + 3) = -\frac{3}{2}$ is
-

Space for rough work

SECTION 3 (Maximum Marks: 18)

- * This section contains **SIX** questions of matching type.
- * This section contains **TWO** tables (each having 3 columns and 4 rows)
- * Based on the table, there are **THREE** questions
- * Each question has **FOUR** options (A), (B), (C) and (D). **ONLY ONE** of these four options is correct.
- * For each question, darken the bubble corresponding to the correct option in the ORS.

49 – 51: Answer the following questions by appropriately matching the information given in the three columns of the following table:

Column 1	Column 2	Column 3
(I) The sum of the roots of the equation $(a + 1)x^2 + (2a + 3)x + (3a + 4)x = 0$ is -1 , then find the product of roots	(i) 1	(P) If $ax^2 + bx + c = 0$ and $bx^2 + cx + a = 0$ have a common root and a, b and c are non-zero real number, then the value of $\frac{a^3 + b^3 + c^3}{abc}$ is
(II) If $p(q - r)x^2 + q(r - p)x + r(p - q) = 0$ has equal roots, then the value of 'k' if $\frac{k}{2q} = \frac{1}{p} + \frac{1}{r}$ is	(ii) 2	(Q) Number of positive integers for which exactly one root of equation $x^2 - m(2x - 8) - 15 = 0$ lies in the interval $(0, 1)$
(III) If the quadratic equation whose product of roots x_1 and x_2 is equal to 4 and satisfying the relation $\frac{x_1}{x_1 - 1} + \frac{x_2}{x_2 - 1} = 2$ is of the form $ax^2 + bx + c$, then $a + b + c$ is	(iii) 3	(R) If $a + b + c = 0$, $a^2 + b^2 + c^2 = 4$, then $a^4 + b^4 + c^4$ is $2k$, then value of 'k' is
(IV) Harmonic mean between roots of $(5 + \sqrt{2})x^2 - (4 + \sqrt{5})x + 8 + 2\sqrt{5} = 0$ is $4k$, then the value of 'k' is	(iv) 4	(S) If the roots of the equation $x^2 - 8x + a^2 - 6a = 0$ are real distinct, then the total number of possible integral values of a is $\frac{9k}{2}$, then the value of 'k' is

49. Which of the following options is the only **CORRECT** combination ?
 (A) (I) (ii) (S) (B) (I) (iii) (P) (C) (I) (ii) (R) (D) (I) (iv) (R)
50. Which of the following options is the only **CORRECT** combination ?
 (A) (III) (ii) (S) (B) (III) (i) (Q) (C) (II) (iv) (R) (D) (II) (iii) (P)
51. Which of the following options is the only **INCORRECT** combination ?
 (A) (II) (iv) (R) (B) (III) (iii) (P) (C) (IV) (iii) (P) (D) (IV) (i) (Q)

Space for rough work

52 – 54: By observing column 1, column 2, column 3 establish the relation and answer to the questions below:

Column 1	Column 2	Column 3
(I) If $(a^2 - 1)x^2 + (a - 1)x + a^2 - 4a + 3 = 0$ is an identity in x , then the value of 'a' is	(i) 0	(P) If a, b, c are 3 distinct positive real numbers, then the number of real roots of $ax^2 + 2b x - c = 0$ is
(II) If the roots of the quadratic equation $x^2 + px + q = 0$ are $\tan 30^\circ$ and $\tan 15^\circ$, respectively, then find the value of $2 + q - p$	(ii) 1	(Q) The number of roots of the equation $\sqrt{x-2}(x^2 - 4x + 3) = 0$ is $5 - k$, then the value of 'k' is
(III) If a quadratic equation with real coefficients whose one root is $5 - 4i$ is of the form $ax^2 + bx + c = 0$, then $\frac{a+b+c}{16}$ is	(iii) 3	(R) If $x = 1 + \frac{1}{3 + \frac{1}{2 + \frac{1}{3 + \frac{1}{2 + \dots \infty}}}}$ and the value of x is $\sqrt{\frac{5}{3}}$ m, then the value of 'm' is
(IV) Sum of values of 'x' satisfying the equation $(31 + 8\sqrt{15})^{x^2-3} + 1 = (32 + 8\sqrt{15})^{x^2-3}$ is	(iv) 2	(S) Number of solutions for $\sqrt{x+5} + \sqrt{x+21} = \sqrt{6x+40}$ is of the form $k + 1$, then the value of 'k' is

52. Which of the following is the only **CORRECT** combination ?
 (A) (IV) (iv) (P) (B) (III) (iv) (P) (C) (III) (iii) (Q) (D) none of these
53. Which of the following is the only **INCORRECT** combination ?
 (A) (I) (ii) (S) (B) (I) (iii) (Q) (C) (II) (iii) (Q) (D) none of these
54. Which of the following options is the **INCORRECT** combination ?
 (A) (II) (iii) (Q) (B) (III) (iv) (P) (C) (III) (iii) (Q) (D) none of these

Space for rough work

FIITJEE RET – 1

EXTENDED_2019

IIT-2017 (P1)

DATE: 16.07.2018

ANSWERS

PHYSICS

1. B	2. C	3. B	4. Bonus
5. D	6. A,B,C	7. B	8. 1
9. 2	10. 6	11. 2	12. 1
13. B	14. C	15. Bonus	16. A
17. B	18. C		

CHEMISTRY

19. A, B	20. A, D	21. A, C	22. A, B, D
23. B,C,D	24. A,B,C,D	25. A, C	26. 3
27. 4	28. 4	29. 2	30. 7
31. A	32. B	33. A	34. B
35. D	36. C		

MATHEMATICS

37. C	38. A, C	39. B, C, D	40. A
41. B, C	42. A, D	43. C	44. 5
45. 4	46. 0	47. 1	48. 2
49. A	50. C	51. C	52. B
53. C	54. C		