FIITJEE PET – V (REG_2ND YEAR)

MAINS_SET–A

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 of the parabola whose vertex is (–2, 1), axis is parallel to y-axis and latus rectum 6 is
   (A) $(y + 2)^2 = \pm 4(x - 3)$ (B) $(x + 2)^2 = \pm 6(y - 1)$
   (C) $(y - 1)^2 = 16(x + 2)$ (D) $(y - 2)^2 = -8(x - 5)$

2. The equation of the parabola having focus (5, 2) and vertex (3, –2) is
   (A) $4x^2 - 4xy + y^2 - 72x - 64y + 24 = 0$ (B) $x^2 + 6xy + 9y^2 + 106x - 82y + 9 = 0$
   (C) $y^2 - 12x - 6y - 15 = 0$ (D) $y^2 - x + 2y + 3 = 0$

3. The equation of the parabola whose axis is parabola to x-axis and passing through (2, –1), (6, 1), (3, –2) is
   (A) $y^2 - x + 2y + 3 = 0$ (B) $y^2 - 2x - 3y + 4 = 0$
   (C) $y^2 - 4x - 4y = 0$ (D) $x^2 - 4x - 2y + 10 = 0$

4. The equation of parabola whose latus rectum is the line segment joining the points (–3, 1), (1, 1) is
   (A) $(x + 1)^2 = 4y$ (B) $(x - 1)^2 = 4y$ (C) $(x + 1)^2 = 2y$ (D) $(x - 1)^2 = 2y$

5. The focus of a parabola is (2, 3) and the foot of the perpendicular from the focus to the directrix is (4, 5). The equation to the parabola is
   (A) $(x - 2)^2 + (y - 3)^2 = \left(\frac{1}{2}\right)(x - y + 9)^2$ (B) $(x - 2)^2 + (y - 3)^2 = \left(\frac{1}{2}\right)(x + y + 9)^2$
   (C) $(x - 2)^2 + (y - 3)^2 = \left(\frac{1}{2}\right)(x + y - 9)^2$ (D) none of these

6. If the focus is (1, –1) and the directrix is the line $x + 2y - 9 = 0$, the vertex of the parabola is
   (A) (1, 2) (B) (2, 1) (C) (1, –2) (D) (2, –1)

7. The focus of the parabola $y^2 - 4y - 8x - 4 = 0$ is
   (A) (1, 1) (B) (1, 2) (C) (2, 0) (D) (2, 2)

8. The length of the latus rectum of the parabola $y^2 + 8x - 2y + 17 = 0$ is
   (A) 2 (B) 4 (C) 8 (D) 16

9. The ends of the latus rectum of the parabola $(x - 2)^2 = -6(y + 1)$ are
   (A) (2, 7), (3, –7) (B) (0, 5), (0, –5) (C) (0, 7), (0, –5) (D) $\left(5, -\frac{5}{2}\right), \left(-1, -\frac{5}{2}\right)$

Space for rough work

10. The equation of the directrix to the parabola $y^2 - 2x - 6y - 5 = 0$ is
(A) $2x + 15 = 0$ (B) $x + 5 = 0$ (C) $2x + 3 = 0$ (D) $x + 2 = 0$

11. The focal distance of the point (9, 6) on the parabola $y^2 = 4x$ is
(A) 4 (B) 8 (C) 10 (D) 16

12. $\left(\frac{1}{2},2\right)$ is one extremity of a focal chord of the parabola $y^2 = 8x$. The coordinates of the other extremity is
(A) (8, 8) (B) (–8, 8) (C) (8, –8) (D) (–8, –8)

13. Let M be the foot of the perpendicular from a point P on the parabola $y^2 = 8(x - 3)$ onto its directrix and let S be the focus of the parabola. If ΔSPM is an equilateral triangle, then P =
(A) $\left(4\sqrt{3},8\right)$ (B) $\left(8,4\sqrt{3}\right)$ (C) $\left(9,4\sqrt{3}\right)$ (D) $\left(4\sqrt{3},9\right)$

14. PQ is a double ordinate of the parabola $y^2 = 4x$. The locus of its point of trisection is
(A) $9y^2 + 4x = 0$ (B) $4y^2 = 9x$ (C) $9x^2 + 4y = 0$ (D) $9y^2 = 4x$

15. The equation of the tangent to the parabola $y^2 = 8x$ inclined at 30° to the x-axis is
(A) $3x - \sqrt{3}y + 4 = 0$ (B) $2x - 3y + 14 = 0$ (C) $2x - \sqrt{2}y + 7 = 0$ (D) $x - \sqrt{3}y + 6 = 0$

16. The point of contact $2x - y + 2 = 0$ to the parabola $y^2 = 16x$ is
(A) (2, 4) (B) (3, 4) (C) (1, 4) (D) (2, 1)

17. The line, among the following that touches the parabola $y^2 = 4ax$ is
(A) $x + my + am^3 = 0$ (B) $x - my + am^2 = 0$ (C) $x + my - am^2 = 0$ (D) $y + mx + am^2 = 0$

18. The equation of the common tangent to $x^2 + y^2 = 2a^2$ and $y^2 = 8ax$ is
(A) $y = \pm(x + a)$ (B) $y = \pm(x + 2a)$ (C) $y = \pm(x + 3a)$ (D) $y = \pm(x + 4a)$

19. The slope of the line touching both the parabola $y^2 = 4x$ and $x^2 = -32y$ is
(A) $\frac{1}{8}$ (B) $\frac{2}{3}$ (C) $\frac{1}{2}$ (D) $\frac{3}{2}$

20. The equation of a tangent to the parabola $y^2 = 8x$ is $y = x + 2$. The point on this line from which the other tangent to the parabola is perpendicular to the given tangent is
(A) (–1, 1) (B) (0, 2) (C) (2, 4) (D) (–2, 0)

Space for rough work

21. The point on intersection of the tangents at the ends of latusrectum of the parabola $y^2 = 4x$ is
(A) (0, 0) (B) (0, 1) (C) (–1, 0) (D) (1, 0)

22. The latus of the point of intersection of two tangents to the parabola $y^2 = 4ax$ which make an angle α with one another is
(A) $y^2 - 4ax = (x + a)^2 \tan^2\alpha$ (B) $y^2 - 4ax = (x + a)^2 \cot^2\alpha$
(C) $y^2 - 4ax = (x + a)^2$ (D) $y^2 - 4ax = (x + a)^2 \sin^2\alpha$

23. If M is the foot of the perpendicular from point P on a parabola to its directrix and SPM is an equilateral triangle, where S is the focus, then SP =
(A) a (B) 2a (C) 3a (D) 4a

24. The length of the perpendicular from the focus S of the parabola $y^2 = 4ax$ on the tangent at P is
(A) $\sqrt{OS \cdot SP}$ (B) OS.SP (C) OS + OP (D) none of these

25. If y_1, y_2 are the ordinates of two points P and Q on the parabola and y_3 is the ordinate of the point of intersection of tangents at P and Q, then
(A) y_1, y_2, y_3 are in AP (B) y_1, y_3, y_2 are in AP (C) y_1, y_2, y_3 are in GP (D) y_1, y_3, y_2 are in GP

26. The angle between the tangents drawn from the origin to the parabola $y^2 = 4a(x - a)$ is
(A) $\frac{\pi}{6}$ (B) $\frac{\pi}{4}$ (C) $\frac{\pi}{3}$ (D) $\frac{\pi}{2}$

27. If the ends of a focal chord of the parabola $y^2 = 4ax$ are (x_1, y_1) and (x_2, y_2) then $x_1x_2 + y_1y_2 =$
(A) a^2 (B) $-3a^2$ (C) $5a^2$ (D) $-5a^2$

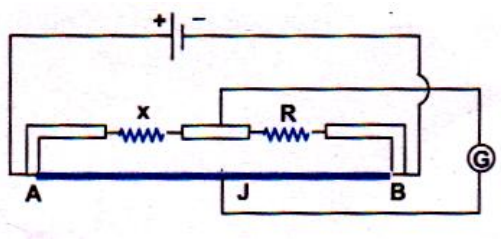
28. The length of the focal chord of the parabola $y^2 = 4ax$ which makes an angle θ with its axis is
(A) $4a \sin^2\theta$ (B) $4a \cos^2\theta$ (C) $4a \operatorname{cosec}^2\theta$ (D) $4a \sec^2\theta$

29. A circle of radius 4, drawn on a chord of the parabola $y^2 = 8x$ as diameter, touches the axis of the parabola. Then, the slope of the chord is
(A) $\frac{1}{2}$ (B) $\frac{3}{4}$ (C) 1 (D) 2

30. The portion of the tangent intercepted between the point of contact and the directrix of the parabola $y^2 = 4ax$ subtends at the focus at an angle of
(A) 30° (B) 45° (C) 60° (D) 90°

Space for rough work

31. The figure, shows a metre bridge circuit, with AB = 100cm, x = 12 Ω and R = 18Ω and the jockey J in the position of the balance. If R is now made 8Ω, through what distance will J have to be moved to obtain balance ?



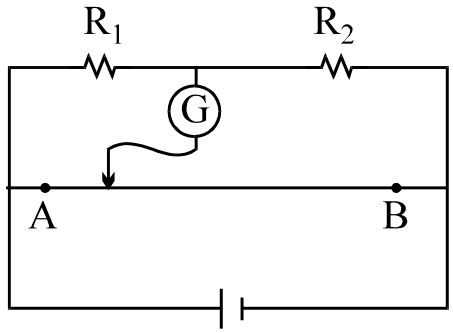
(A) 10 cm (B) 20 cm
(C) 30 cm (D) 40 cm

32. An electric heater has a resistance of 150Ω and can bear a maximum current of 1 A . If the heater is to be used on 220 V mains, the least resistance required in the circuit will be
(A) 70Ω (B) 5Ω (C) 2.5 Ω (D) 1.4 Ω

33. A resistor R_1 dissipates the power P when connected to a certain battery. If a resistance R_2 is put in series with R_1 the power dissipated by R_1
(A) decreases
(B) increases
(C) remains the same
(D) any of the above depending upon the values of R_1 and R_2

34. If two bulbs of 25 W and 100 W rated at 200 volts are connected in series across a 440 volts supply, then
(A) 100 watt bulb will fuse (B) 25 watt bulb will fuse
(C) none of the bulb will fuse (D) both the bulbs will fuse

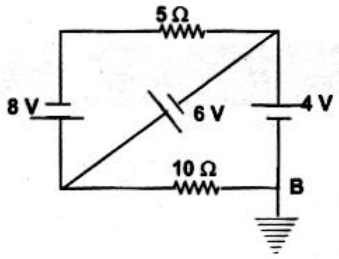
35. In the figure shown for the given values of R_1 and R_2 the balance point for Jockey is at 40 cm from A. When R_2 is shunted by a resistance of 10 Ω, balance shifts to 50 cm. R_1 and R_2 are (AB = 1 m):
(A) 10/3 Ω, 5 Ω
(B) 20 Ω, 30 Ω
(C) 10 Ω, 15 Ω
(D) 5 Ω, 15/2 Ω



Space for rough work

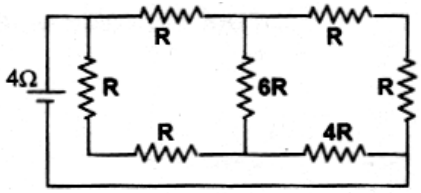
36. The current through the 5Ω resistor is

(A) 0.1 A (B) 0.2 A
(C) 0.5 A (D) 0.4 A



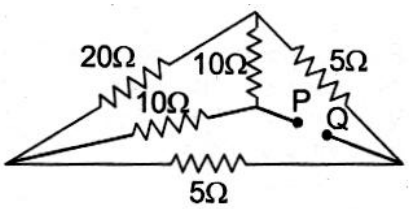
37. A battery of internal resistance 4Ω is connected to the network of resistance as shown. In order to give the maximum power to the network, the value of R (in ohm) should be

(A) 4/9 (B) 8/9
(C) 2 (D) 18



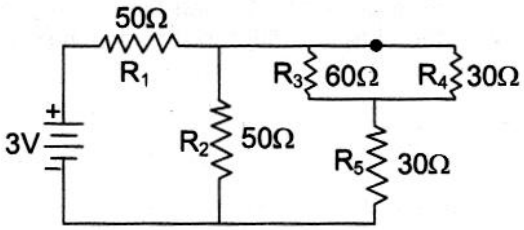
38. The equivalent resistance between the points P and Q in the network shown in the figure is given by

(A) 2.5Ω (B) 7.5Ω
(C) $10\ \Omega$ (D) 12.5Ω

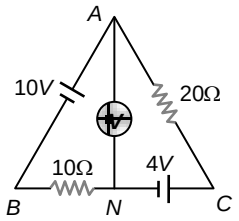


39. In the circuit shown below, the resistance are given in ohms and the battery is assumed ideal with emf equal to 3 V. The voltage across the resistance R_4 is

(A) 0.4 V (B) 0.6 V
(C) 1.2 V (D) 1.5 V



40. The reading of the ideal voltmeter in the adjoining diagram will be



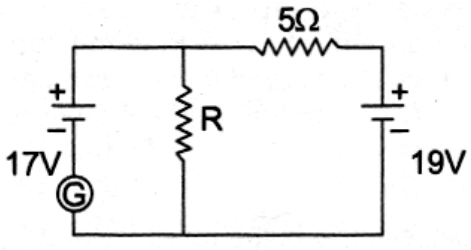
(A) 4 *V* (B) 8 *V* (C) 12 *V* (D) 14 *V*

Space for rough work

41. For what value of R will the current in galvanometer be zero ?

(A) 7Ω (B) 5Ω

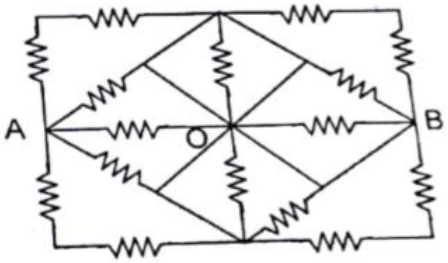
(C) 15Ω (D) $85/2\Omega$



42. Value of resistance in each branch is 18Ω. The equivalent resistance between the points A and B is

(A) 3Ω (B) 6Ω

(C) 9Ω (D) 4.5 Ω



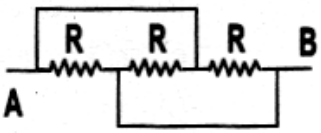
43. The smallest resistance obtained by connecting 50 resistance of ¼ ohm each is

(A) 50/4 ohm (B) 4/50 ohm (C) 200 ohm (D) 1/200 ohm

44. Three equal resistors, each equal to R, are connected as shown in the adjoining figure. Then, the equivalent resistance between points A and B is

(A) R (B) 3R

(C) R/3 (D) 2R/3



45. An ammeter and voltmeter are joined in series to a cell. Their readings are A and B respectively. If a resistance is now joined in parallel with the voltmeter

(A) both A and V will increase (B) both A and V will decrease

(C) A will decrease, V will increase (D) A will increase, V will decrease

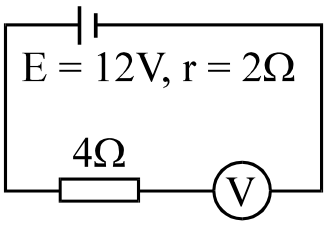
46. Four cells of equal emf (E) and internal resistance (r) are connected in series. If one cell is connected with reverse polarity, the equivalent emf and internal resistance will be

(A) 3E and 3r (B) 3E and 4r

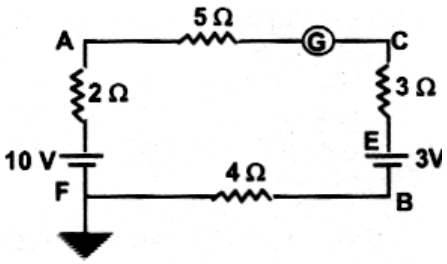
(C) 2E and 3r (D) 2 E and 4 r

Space for rough work

47. By error, a student places moving-coil voltmeter V (nearly ideal) in series with the resistance in a circuit in order to read the current, as shown. The voltmeter reading will be
(A) 0 (B) 4V
(C) 6V (D) 12V



48. In the circuit shown in the figure, the point F is grounded. Which of the following is a wrong statement ?
(A) Potential at E is zero
(B) Potential at B is 2 V
(C) The current in the circuit will be 0.5 A
(D) The current in the circuit is same whether or not F is grounded.



49. The masses of the three wires of copper are in the ratio of 1:3: 5 and their lengths are in the ratio 5: 3 : 1. The ratio of their electrical resistance is
(A) 1:3:5 (B) 5:3:1 (C) 1:15:125 (D) 125 : 15: 1

50. To get maximum current through a resistance of 2.5Ω one can use m row of cell, each row having n cells. The internal resistance of each cell is 0.5Ω. What re the value of n and m if the total number of cell is 45 ?
(A) m = 3, n= 15 (B) m = 5, n= 9
(C) m = 9, n= 5 (D) m = 15, n= 3

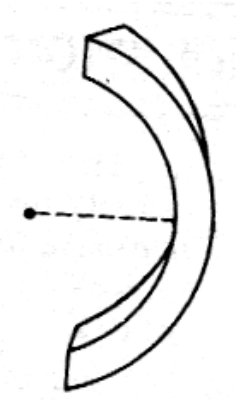
51. If a copper wire is stretched to make it 0.1 % longer, the percentage increase in resistance will be
(A) 0.2 (B) 2 (C) 1 (D) 0.1

52. If the two bulbs of wattages 25 and 100 respectively, each rated at 220 volts are connected in series with the supply of 440 volts, which bulb will fuse
(A) 100 watt bulb (B) 25 watt bulb
(C) none of these (D) both of them

Space for rough work

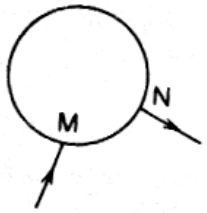
53. What will be the resistance of a semicircle shown in fig, between its two end faces ? Given that radial thickness = 3 cm, axial thickness = 4 cm, inner radius = 6 cm and specific resistance = 4×10^{-6} ohm x cm.

(A) 7.85×10^{-5} ohm (B) 7.85×10^{-6} ohm
(C) 24.15×10^{-6} ohm (D) 31.4×10^{-6} ohm



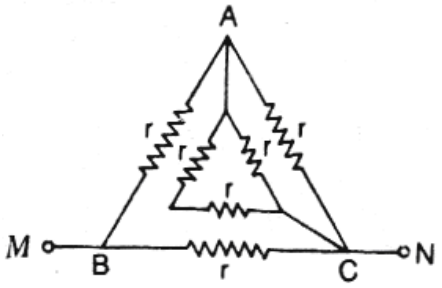
54. A uniform wire of resistance 20 ohm having resistance $1\Omega/m$ is bent in form of a circle as shown in fig. If the equivalent resistance between M and N is $1.8\,\Omega$, then the length of the shorter section is

(A) 2 m (B) 5 m
(C) 1.8 m (D) 18 m



55. The resistance across M and N in the given fig is

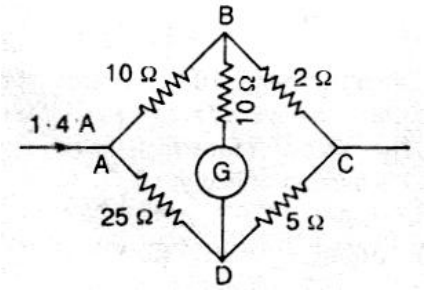
(A) r /2 (B) r/3
(C) 6 r (D) 2r



Space for rough work

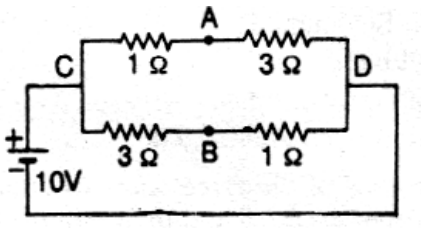
56. In figure, a current 1.4 amp. Flows towards the bridge circuit. The current in 2Ω resistor is

(A) 1.4 amp (B) 1.2 amp
(C) 1.0 amp (D) 0.6 amp



57. A battery of emf 10 V is connected to resistances as shown in fig. The potential difference between A and B (V_B - V_B) is

(A) – 2 V (B) 2 V
(C) 5 V (D) (20 /11) V



58. A number of 110 volt lamps connected in parallel are fed by a 130 V battery having an internal resistance of 2.6 ohm. If the resistance of each lamp is 200 ohm and the resistance of conducting wires 0.40 ohm, the number of lamps, which the battery can supply is

(A) 5 (B) 10 (C) 12 (D) 15

59. The electron beam in a television picture tube travels a total distance of 0.50 m in the evacuated space of the tube. If the speed of the electrons is 8.0×10^7 m/s and the beam current is 2.0 m A, then the number of electrons in the beam at any one instant is

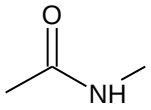
(A) 7.8×10^7 (B) 7.8×10^9 (C) 3.9×10^7 (D) 3.9×10^9

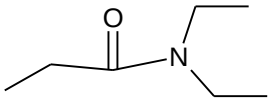
60. A steady current flows in a metallic conductor of non – uniform cross –section. The quantity / quantities constant along the length of the conductor is / are

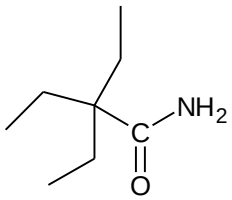
(A) current, electric field and drift speed (B) drift speed only
(C) current and drift speed (D) current only

Space for rough work

61. Which of the following shows Hoffmann bromamide rearrangement reaction.

(A) 

(B) 

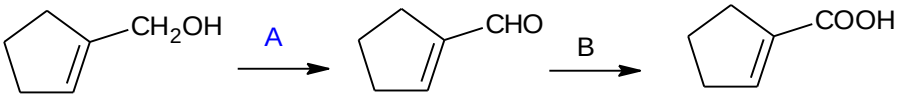
(C) 

(D) All

62. Maleic acid $\xrightarrow[\text{cold}]{\text{dil. alk.KMnO}_4}$ A . A is

(A) (+) Tartaric acid
(B) (–) Tartaric acid
(C) ($\pm$) Tartaric acid
(D) Meso tartaric acid

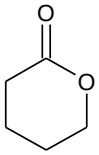
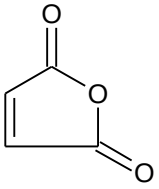
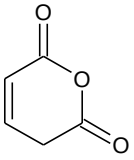
63.



Identify correct statement regarding A & B

(A) A = MnO_2 B = Tollen's reagent
(B) A = $KMnO_4$ B = Fehling's solution
(C) A = LAH B = Schiff base
(D) A = HNO_3 B = $NaBH_4$

64. $C_2H_2 \xrightarrow[\text{(iii)}H_3O^+]{\text{(i) Excess NaNH}_2,\ \text{(ii)}CO_2} A \xrightarrow[\text{Reagent}]{\text{Lindlar's}} B \xrightarrow{\Delta} C$. C is

(A) $COOH–CH_2–CH_2–COOH$ (B)  (C)  (D) 

65. $A \xrightarrow{LAH} CH_3 - CH_2 - OH$ A could be

(A) CH_3COOH (B) $CH_3CO–O–CO–CH_3$ (C) $CH_3–CO–Cl$ (D) All

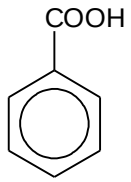
Space for rough work

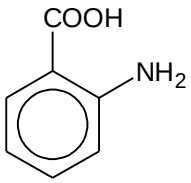
66. Which of the following has high reducing property
(A) CH_3COOH (B) HCOOH (C) $(COOH)_2$ (D) All

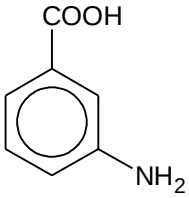
67. $CH_3COOH \xrightarrow{A} CH_3COCl$. A could not be
(A) $SOCl_2$ (B) PCl_5 (C) PCl_3 (D) P_2O_5/Δ

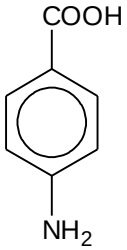
68. Dehydration occurs on heating
(A) Succinic acid (B) Malonic acid
(C) Oxalic acid (D) Adipic acid

69. Lowest pKa among the following is for

(A) 

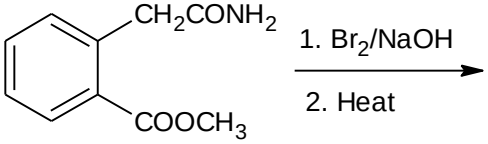
(B) 

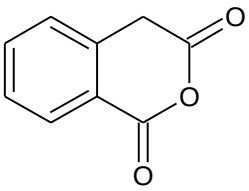
(C) 

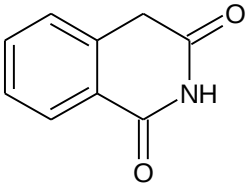
(D) 

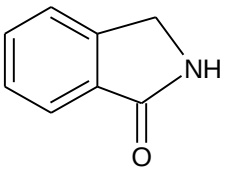
70. Which of the following gives benzoic acid when treated with acidified $KMnO_4$ solution
(A) $Ph–CH_3$ (B) $Ph–C_2H_5$ (C) Isopropyl benzene (D) All

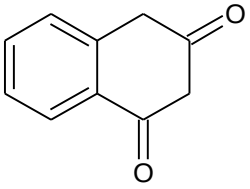
71. The following reaction gives



(A) 

(B) 

(C) 

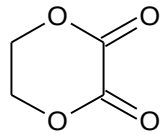
(D) 

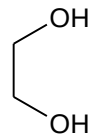
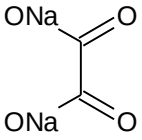
Space for rough work

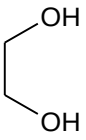
72. Identify Z in the sequence

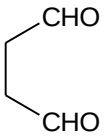
$CH_3COONH_4 \xrightarrow{\Delta} X \xrightarrow[\Delta]{P_2O_5} Y \xrightarrow{H_2O/H^+} Z$

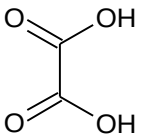
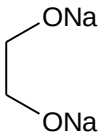
(A) $CH_3CH_2CONH_2$ (B) CH_3CN (C) CH_3COOH (D) $(CH_3CO)_2O$

73.  + NaOH (aq) ⟶

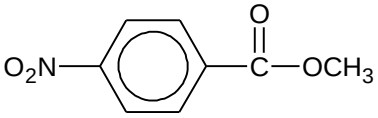
(A)  and 

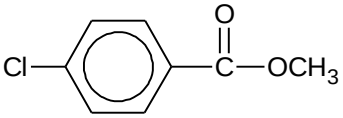
(B)  and 2 CO_2

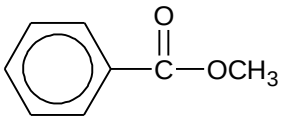
(C)  and Na_2CO_3

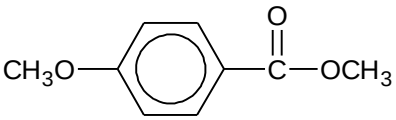
(D)  and 

74. The ease of alkaline hydrolysis is the greatest for

(A) 

(B) 

(C) 

(D) 

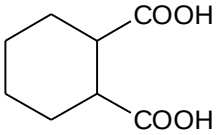
75. In $C_6H_5COOCH_3 \xrightarrow{LiAlH_4} X$ will be

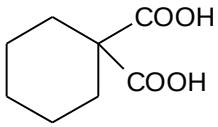
(A) $C_6H_5COOH + CH_3OH$ (B) $C_6H_5CH_2OH + CH_3OH$

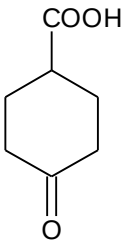
(C) $C_6H_5CHO + CH_3COOH$ (D) All of the above

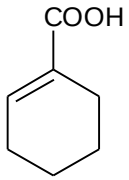
Space for rough work

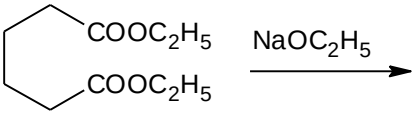
76. Which of the following compound undergo decarboxylation on heating ?

(A) 

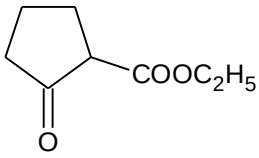
(B) 

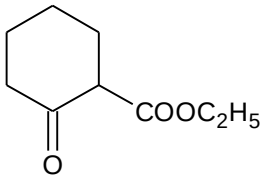
(C) 

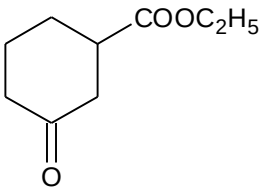
(D) 

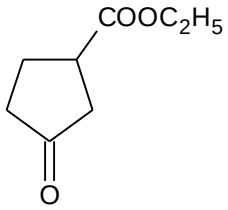
77. 

'A' is :

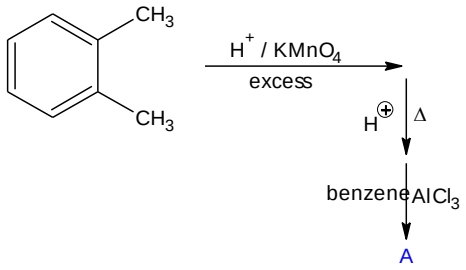
(A) 

(B) 

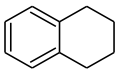
(C) 

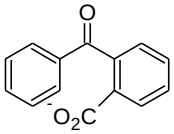
(D) 

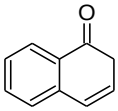
Space for rough work

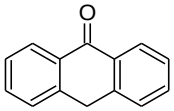
78. 

The structure of the compound (A) in the above reaction is

(A) 

(B) 

(C) 

(D) 

79. Malonic acid and succinic acid are distinguished by
(A) heating (B) with $NaHCO_3$ (C) $KMnO_4$ (D) PCl_5

80. Which of the following acids on heating loses a molecule of H_2O to form an α, β-unsaturated acid?
(A) $CH_3CHOHCOOH$ (B) $HOCH_2COOH$
(C) $CH_2CHOHCH_2COOH$ (D) $HOCH_2CH_2CH_2COOH$

81. Phenols is a weaker acid than acetic acid because
(A) Phenoxide ion is better stabilized by resonance than acetate ion
(B) Acetate ion is better stabilized by resonance than phenoxide ion
(C) Phenol is less soluble in water than acetic acid
(D) Both phenoxide ion and acetate ion are stabilized by resonance.

82. The acid which does not form an anhydride when treated with P_2O_5 is
(A) formic acid (B) acetic acid
(C) propionic acid (D) Benzoic acid

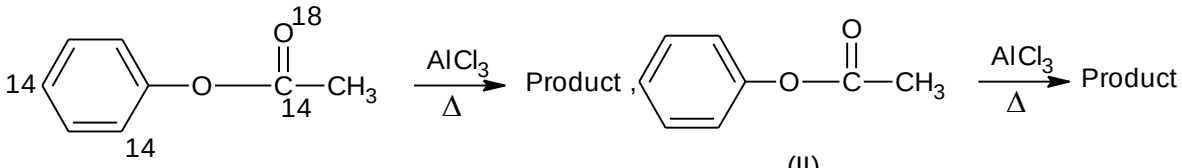
Space for rough work

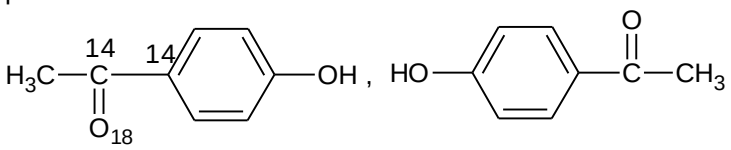
83. The correct order of decreasing acid strength of trichloroacetic acid ((A), trifluoroacetic acid ((B), acetic acid ((C) and formic acid ((D) is
(A) A > B > C > D (B) A > C > B > D (C) B > A > D > C (D) B > D > C > A

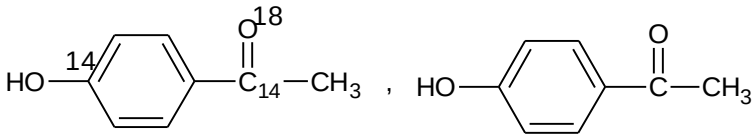
84. Starting from propanoic acid the following reaction were carried out
$CH_3CH_2COOH \xrightarrow{SOCl_2} X \xrightarrow{NH_3} Y \xrightarrow[KOH]{Br_2} Z$ product Z will be
(A) CH_3CH_2Br (B) $CH_3CH_2NH_2$ (C) CH_3CH_2COBr (D) $CH_3CH_2CH_2NH_2$

85. $R-CO-NH_2 \xrightarrow{SOCl_2}$ Products. The change in oxidation state of sulphur in this reaction is
(A) 0 (B) 1 (C) 2 (D) 4

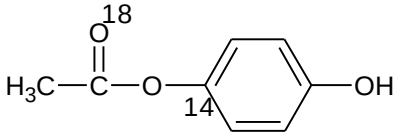
86. The product (D) in the following sequence of reactions is
$CH_3COOH \xrightarrow{NH_3} (A) \xrightarrow{Heat} (B) \xrightarrow{P_2O_5} (C) \xrightarrow{Na+C_2H_5OH} (D)$
(A) ester (B) amine (C) acid (D) alcohol

87. 
(I) (II)
Compounds (I) and (II) were treated with $AlCl_3$ then which of the following can be formed as products.

(A) 

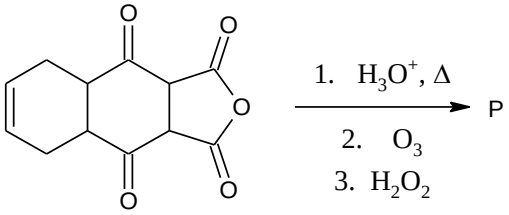
(B) 

(C) products given in both (a) and (b) are possible.

(D) 

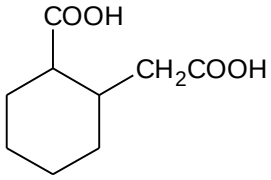
Space for rough work

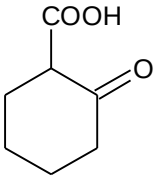
88. The total number of carboxylic acid groups in the product P is

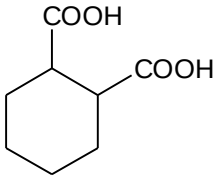


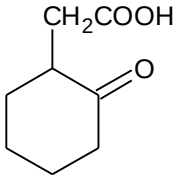
(A) 2 (B) 4 (C) 6 (D) 8

89. The compound that undergoes decarboxylation most readily under mild condition is

(A) 

(B) 

(C) 

(D) 

90. The major product H of the given reaction sequence is

$$CH_3-CH_2-CO-CH_3 \xrightarrow{(-)CN} G \xrightarrow[\text{Heat}]{95\%\ H_2SO_4} H$$

(A) $CH_3-CH=C(CH_3)-COOH$ (B) $CH_3-CH=C(CH_3)-CN$

(C) $CH_3-CH_2-\underset{\displaystyle CH_3}{\overset{\displaystyle OH}{\overset{|}{\underset{|}{C}}}}-COOH$ (D) $CH_3-CH=C(CH_3)-CO-NH_2$

Space for rough work

FIITJEE PET – V (REG_2ND YEAR)

MAINS_SET–A_ANSWERS

DATE: 21.07.2018

MATHEMATICS

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

PHYSICS

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

CHEMISTRY

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

FIITJEE PET – V (REG_2ND YEAR)

MAINS_SET–B

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 point on intersection of the tangents at the ends of latusrectum of the parabola $y^2 = 4x$ is
(A) (0, 0) (B) (0, 1) (C) (–1, 0) (D) (1, 0)

2. The latus of the point of intersection of two tangents to the parabola $y^2 = 4ax$ which make an angle α with one another is
(A) $y^2 - 4ax = (x + a)^2 \tan^2\alpha$ (B) $y^2 - 4ax = (x + a)^2 \cot^2\alpha$
(C) $y^2 - 4ax = (x + a)^2$ (D) $y^2 - 4ax = (x + a)^2 \sin^2\alpha$

3. If M is the foot of the perpendicular from point P on a parabola to its directrix and SPM is an equilateral triangle, where S is the focus, then SP =
(A) a (B) 2a (C) 3a (D) 4a

4. The length of the perpendicular from the focus S of the parabola $y^2 = 4ax$ on the tangent at P is
(A) $\sqrt{OS \cdot SP}$ (B) OS.SP (C) OS + OP (D) none of these

5. If y_1, y_2 are the ordinates of two points P and Q on the parabola and y_3 is the ordinate of the point of intersection of tangents at P and Q, then
(A) y_1, y_2, y_3 are in AP (B) y_1, y_3, y_2 are in AP (C) y_1, y_2, y_3 are in GP (D) y_1, y_3, y_2 are in GP

6. The point of contact $2x - y + 2 = 0$ to the parabola $y^2 = 16x$ is
(A) (2, 4) (B) (3, 4) (C) (1, 4) (D) (2, 1)

7. The line, among the following that touches the parabola $y^2 = 4ax$ is
(A) $x + my + am^3 = 0$ (B) $x - my + am^2 = 0$ (C) $x + my - am^2 = 0$ (D) $y + mx + am^2 = 0$

8. The equation of the common tangent to $x^2 + y^2 = 2a^2$ and $y^2 = 8ax$ is
(A) $y = \pm(x + a)$ (B) $y = \pm(x + 2a)$ (C) $y = \pm(x + 3a)$ (D) $y = \pm(x + 4a)$

9. The slope of the line touching both the parabola $y^2 = 4x$ and $x^2 = -32y$ is
(A) $\frac{1}{8}$ (B) $\frac{2}{3}$ (C) $\frac{1}{2}$ (D) $\frac{3}{2}$

10. The equation of a tangent to the parabola $y^2 = 8x$ is $y = x + 2$. The point on this line from which the other tangent to the parabola is perpendicular to the given tangent is
(A) (–1, 1) (B) (0, 2) (C) (2, 4) (D) (–2, 0)

11. The equation of the parabola whose vertex is (–2, 1), axis is parallel to y-axis and latus rectum 6 is
(A) $(y + 2)^2 = \pm 4(x - 3)$ (B) $(x + 2)^2 = \pm 6(y - 1)$
(C) $(y - 1)^2 = 16(x + 2)$ (D) $(y - 2)^2 = -8(x - 5)$

Space for rough work

12. The equation of the parabola having focus (5, 2) and vertex (3, –2) is
(A) $4x^2 - 4xy + y^2 - 72x - 64y + 24 = 0$ (B) $x^2 + 6xy + 9y^2 + 106x - 82y + 9 = 0$
(C) $y^2 - 12x - 6y - 15 = 0$ (D) $y^2 - x + 2y + 3 = 0$

13. The equation of the parabola whose axis is parabola to x-axis and passing through (2, –1), (6, 1), (3, –2) is
(A) $y^2 - x + 2y + 3 = 0$ (B) $y^2 - 2x - 3y + 4 = 0$
(C) $y^2 - 4x - 4y = 0$ (D) $x^2 - 4x - 2y + 10 = 0$

14. The equation of parabola whose latus rectum is the line segment joining the points (–3, 1), (1, 1) is
(A) $(x + 1)^2 = 4y$ (B) $(x - 1)^2 = 4y$ (C) $(x + 1)^2 = 2y$ (D) $(x - 1)^2 = 2y$

15. The focus of a parabola is (2, 3) and the foot of the perpendicular from the focus to the directrix is (4, 5). The equation to the parabola is
(A) $(x - 2)^2 + (y - 3)^2 = \left(\frac{1}{2}\right)(x - y + 9)^2$ (B) $(x - 2)^2 + (y - 3)^2 = \left(\frac{1}{2}\right)(x + y + 9)^2$
(C) $(x - 2)^2 + (y - 3)^2 = \left(\frac{1}{2}\right)(x + y - 9)^2$ (D) none of these

16. The angle between the tangents drawn from the origin to the parabola $y^2 = 4a(x - a)$ is
(A) $\frac{\pi}{6}$ (B) $\frac{\pi}{4}$ (C) $\frac{\pi}{3}$ (D) $\frac{\pi}{2}$

17. If the ends of a focal chord of the parabola $y^2 = 4ax$ are (x_1, y_1) and (x_2, y_2) then $x_1x_2 + y_1y_2 =$
(A) a^2 (B) $-3a^2$ (C) $5a^2$ (D) $-5a^2$

18. The length of the focal chord of the parabola $y^2 = 4ax$ which makes an angle θ with its axis is
(A) $4a \sin^2\theta$ (B) $4a \cos^2\theta$ (C) $4a \operatorname{cosec}^2\theta$ (D) $4a \sec^2\theta$

19. A circle of radius 4, drawn on a chord of the parabola $y^2 = 8x$ as diameter, touches the axis of the parabola. Then, the slope of the chord is
(A) $\frac{1}{2}$ (B) $\frac{3}{4}$ (C) 1 (D) 2

20. The portion of the tangent intercepted between the point of contact and the directrix of the parabola $y^2 = 4ax$ subtends at the focus at an angle of
(A) 30° (B) 45° (C) 60° (D) 90°

21. The focal distance of the point (9, 6) on the parabola $y^2 = 4x$ is
(A) 4 (B) 8 (C) 10 (D) 16

Space for rough work

22. $\left(\frac{1}{2},2\right)$ is one extremity of a focal chord of the parabola $y^2 = 8x$. The coordinates of the other extremity is
(A) (8, 8) (B) (–8, 8) (C) (8, –8) (D) (–8, –8)

23. Let M be the foot of the perpendicular from a point P on the parabola $y^2 = 8(x – 3)$ onto its directrix and let S be the focus of the parabola. If ΔSPM is an equilateral triangle, then P =
(A) $\left(4\sqrt{3},8\right)$ (B) $\left(8,4\sqrt{3}\right)$ (C) $\left(9,4\sqrt{3}\right)$ (D) $\left(4\sqrt{3},9\right)$

24. PQ is a double ordinate of the parabola $y^2 = 4x$. The locus of its point of trisection is
(A) $9y^2 + 4x = 0$ (B) $4y^2 = 9x$ (C) $9x^2 + 4y = 0$ (D) $9y^2 = 4x$

25. The equation of the tangent to the parabola $y^2 = 8x$ inclined at 30° to the x-axis is
(A) $3x – \sqrt{3}\,y + 4 = 0$ (B) $2x – 3y + 14 = 0$ (C) $2x – \sqrt{2}\,y + 7 = 0$ (D) $x – \sqrt{3}\,y + 6 = 0$

26. If the focus is (1, –1) and the directrix is the line $x + 2y – 9 = 0$, the vertex of the parabola is
(A) (1, 2) (B) (2, 1) (C) (1, –2) (D) (2, –1)

27. The focus of the parabola $y^2 – 4y – 8x – 4 = 0$ is
(A) (1, 1) (B) (1, 2) (C) (2, 0) (D) (2, 2)

28. The length of the latus rectum of the parabola $y^2 + 8x – 2y + 17 = 0$ is
(A) 2 (B) 4 (C) 8 (D) 16

29. The ends of the latus rectum of the parabola $(x – 2)^2 = –6(y + 1)$ are
(A) (2, 7), (3, –7) (B) (0, 5), (0, –5) (C) (0, 7), (0, –5) (D) $\left(5,-\frac{5}{2}\right),\left(-1,-\frac{5}{2}\right)$

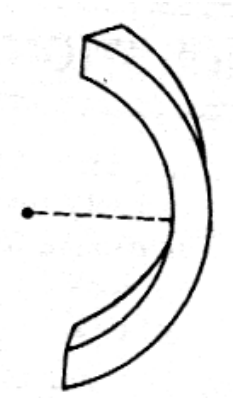
30. The equation of the directrix to the parabola $y^2 – 2x – 6y – 5 = 0$ is
(A) $2x + 15 = 0$ (B) $x + 5 = 0$ (C) $2x + 3 = 0$ (D) $x + 2 = 0$

31. If a copper wire is stretched to make it 0.1 % longer, the percentage increase in resistance will be
(A) 0.2 (B) 2 (C) 1 (D) 0.1

32. If the two bulbs of wattages 25 and 100 respectively, each rated at 220 volts are connected in series with the supply of 440 volts, which bulb will fuse
(A) 100 watt bulb (B) 25 watt bulb
(C) none of these (D) both of them

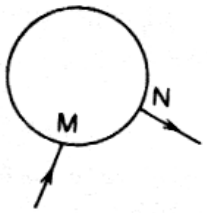
Space for rough work

33. What will be the resistance of a semicircle shown in fig, between its two end faces ? Given that radial thickness = 3 cm, axial thickness = 4 cm, inner radius = 6 cm and specific resistance = 4×10^{-6} ohm x cm.



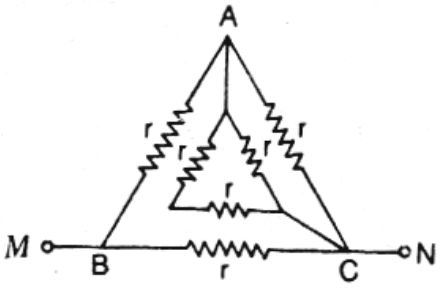
(A) 7.85×10^{-5} ohm (B) 7.85×10^{-6} ohm
(C) 24.15×10^{-6} ohm (D) 31.4×10^{-6} ohm

34. A uniform wire of resistance 20 ohm having resistance $1\Omega/m$ is bent in form of a circle as shown in fig. If the equivalent resistance between M and N is $1.8\,\Omega$, then the length of the shorter section is



(A) 2 m (B) 5 m
(C) 1.8 m (D) 18 m

35. The resistance across M and N in the given fig is

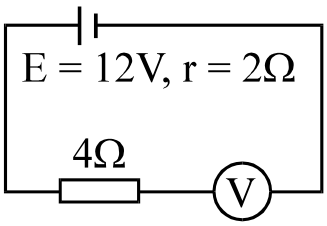


(A) r /2 (B) r/3
(C) 6 r (D) 2r

36. Four cells of equal emf (E) and internal resistance (r) are connected in series. If one cell is connected with reverse polarity, the equivalent emf and internal resistance will be
(A) 3E and 3r (B) 3E and 4r
(C) 2E and 3r (D) 2 E and 4 r

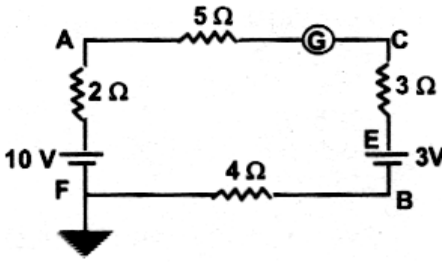
Space for rough work

37. By error, a student places moving-coil voltmeter V (nearly ideal) in series with the resistance in a circuit in order to read the current, as shown. The voltmeter reading will be



(A) 0 (B) 4V
(C) 6V (D) 12V

38. In the circuit shown in the figure, the point F is grounded. Which of the following is a wrong statement ?

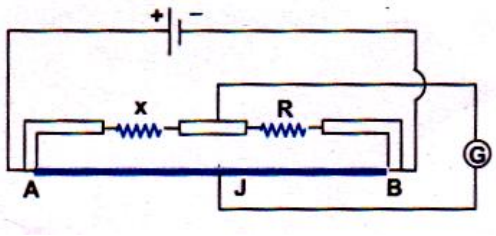


(A) Potential at E is zero
(B) Potential at B is 2 V
(C) The current in the circuit will be 0.5 A
(D) The current in the circuit is same whether or not F is grounded.

39. The masses of the three wires of copper are in the ratio of 1:3: 5 and their lengths are in the ratio 5: 3 : 1. The ratio of their electrical resistance is
(A) 1:3:5 (B) 5:3:1 (C) 1:15:125 (D) 125 : 15: 1

40. To get maximum current through a resistance of 2.5Ω one can use m row of cell, each row having n cells. The internal resistance of each cell is 0.5Ω. What re the value of n and m if the total number of cell is 45 ?
(A) m = 3, n= 15 (B) m = 5, n= 9
(C) m = 9, n= 5 (D) m = 15, n= 3

41. The figure, shows a metre bridge circuit, with AB = 100cm, x = 12Ω and $R = 18\Omega$ and the jockey J in the position of the balance. If R is now made 8Ω, through what distance will J have to be moved to obtain balance ?



(A) 10 cm (B) 20 cm
(C) 30 cm (D) 40 cm

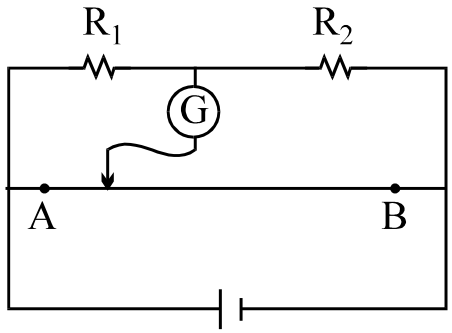
42. An electric heater has a resistance of 150Ω and can bear a maximum current of 1 A . If the heater is to be used on 220 V mains, the least resistance required in the circuit will be
(A) 70Ω (B) 5Ω (C) $2.5\ \Omega$ (D) $1.4\ \Omega$

Space for rough work

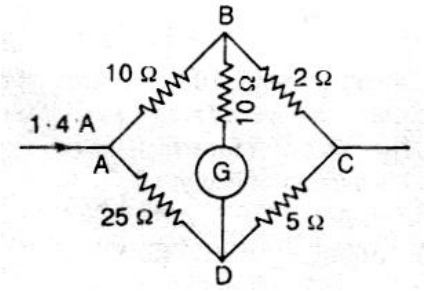
43. A resistor R_1 dissipates the power P when connected to a certain battery. If a resistance R_2 is put in series with R_1 the power dissipated by R_1
(A) decreases
(B) increases
(C) remains the same
(D) any of the above depending upon the values of R_1 and R_2

44. If two bulbs of 25 W and 100 W rated at 200 volts are connected in series across a 440 volts supply, then
(A) 100 watt bulb will fuse
(B) 25 watt bulb will fuse
(C) none of the bulb will fuse
(D) both the bulbs will fuse

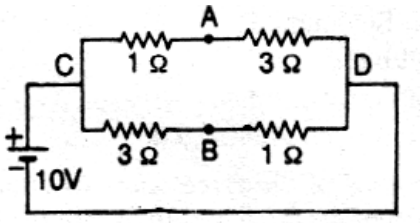
45. In the figure shown for the given values of R_1 and R_2 the balance point for Jockey is at 40 cm from A. When R_2 is shunted by a resistance of 10 Ω, balance shifts to 50 cm. R_1 and R_2 are (AB = 1 m):
(A) 10/3 Ω, 5 Ω
(B) 20 Ω, 30 Ω
(C) 10 Ω, 15 Ω
(D) 5 Ω, 15/2 Ω



46. In figure, a current 1.4 amp. Flows towards the bridge circuit. The current in 2Ω resistor is
(A) 1.4 amp
(B) 1.2 amp
(C) 1.0 amp
(D) 0.6 amp



47. A battery of emf 10 V is connected to resistances as shown in fig. The potential difference between A and B (V_B - V_B) is
(A) – 2 V
(B) 2 V
(C) 5 V
(D) (20 /11) V



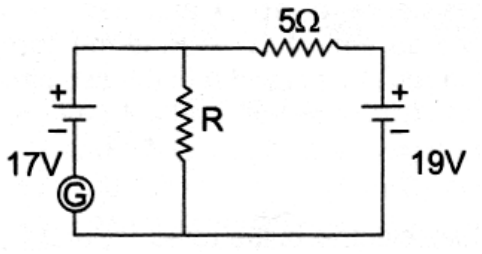
Space for rough work

48. A number of 110 volt lamps connected in parallel are fed by a 130 V battery having an internal resistance of 2.6 ohm. If the resistance of each lamp is 200 ohm and the resistance of conducting wires 0.40 ohm, the number of lamps, which the battery can supply is
(A) 5 (B) 10 (C) 12 (D) 15

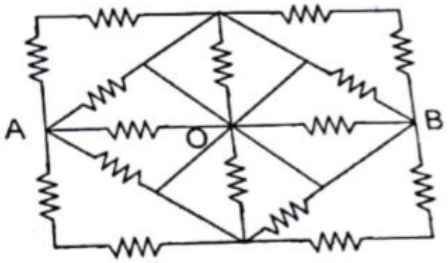
49. The electron beam in a television picture tube travels a total distance of 0.50 m in the evacuated space of the tube. If the speed of the electrons is 8.0×10^7 m/s and the beam current is 2.0 m A, then the number of electrons in the beam at any one instant is
(A) 7.8×10^7 (B) 7.8×10^9 (C) 3.9×10^7 (D) 3.9×10^9

50. A steady current flows in a metallic conductor of non – uniform cross –section. The quantity / quantities constant along the length of the conductor is / are
(A) current, electric field and drift speed (B) drift speed only
(C) current and drift speed (D) current only

51. For what value of R will the current in galvanometer be zero ?
(A) 7Ω (B) 5Ω
(C) 15Ω (D) $85/2\Omega$



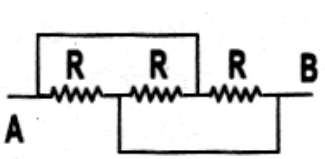
52. Value of resistance in each branch is 18Ω. The equivalent resistance between the points A and B is
(A) 3Ω (B) 6Ω
(C) 9Ω (D) $4.5\ \Omega$



53. The smallest resistance obtained by connecting 50 resistance of ¼ ohm each is
(A) 50/4 ohm (B) 4/50 ohm (C) 200 ohm (D) 1/200 ohm

Space for rough work

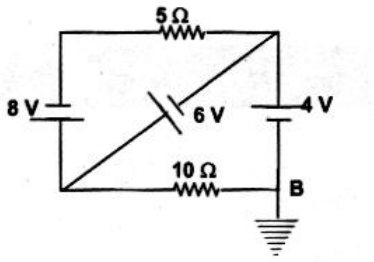
54. Three equal resistors, each equal to R, are connected as shown in the adjoining figure. Then, the equivalent resistance between points A and B is



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

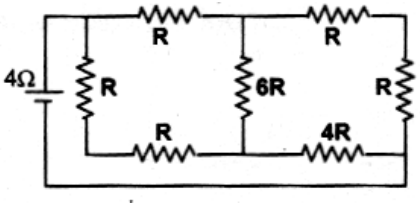
55. An ammeter and voltmeter are joined in series to a cell. Their readings are A and B respectively. If a resistance is now joined in parallel with the voltmeter
(A) both A and V will increase (B) both A and V will decrease
(C) A will decrease, V will increase (D) A will increase, V will decrease

56. The current through the 5Ω resistor is



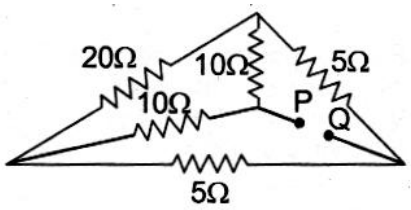
(A) 0.1 A (B) 0.2 A
(C) 0.5 A (D) 0.4 A

57. A battery of internal resistance 4Ω is connected to the network of resistance as shown. In order to give the maximum power to the network, the value of R (in ohm) should be



(A) 4/9 (B) 8/9
(C) 2 (D) 18

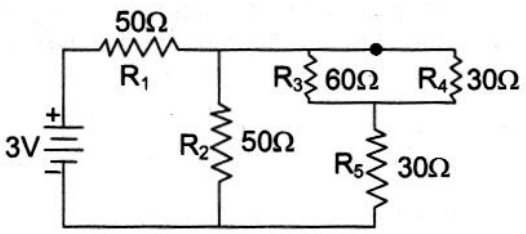
58. The equivalent resistance between the points P and Q in the network shown in the figure is given by



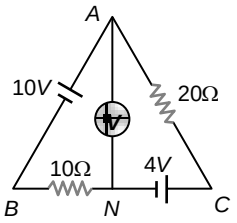
(A) 2.5Ω (B) 7.5Ω
(C) $10\ \Omega$ (D) 12.5Ω

Space for rough work

59. In the circuit shown below, the resistance are given in ohms and the battery is assumed ideal with emf equal to 3 V. The voltage across the resistance R_4 is
(A) 0.4 V (B) 0.6 V
(C) 1.2 V (D) 1.5 V



60. The reading of the ideal voltmeter in the adjoining diagram will be



(A) 4 *V* (B) 8 *V* (C) 12 *V* (D) 14 *V*

61. Phenols is a weaker acid than acetic acid because
(A) Phenoxide ion is better stabilized by resonance than acetate ion
(B) Acetate ion is better stabilized by resonance than phenoxide ion
(C) Phenol is less soluble in water than acetic acid
(D) Both phenoxide ion and acetate ion are stabilized by resonance.

62. The acid which does not form an anhydride when treated with P_2O_5 is
(A) formic acid (B) acetic acid
(C) propionic acid (D) Benzoic acid

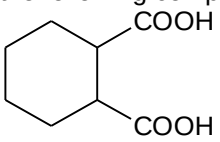
63. The correct order of decreasing acid strength of trichloroacetic acid ((A), trifluoroacetic acid ((B), acetic acid ((C) and formic acid ((D) is
(A) A > B > C > D (B) A > C > B > D (C) B > A > D > C (D) B > D > C > A

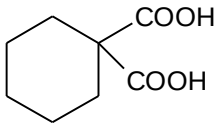
64. Starting from propanoic acid the following reaction were carried out
$CH_3CH_2COOH \xrightarrow{SOCl_2} X \xrightarrow{NH_3} Y \xrightarrow[KOH]{Br_2} Z$ product Z will be
(A) CH_3CH_2Br (B) $CH_3CH_2NH_2$ (C) CH_3CH_2COBr (D) $CH_3CH_2CH_2NH_2$

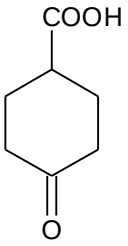
65. $R-CO-NH_2 \xrightarrow{SOCl_2}$ Products. The change in oxidation state of sulphur in this reaction is
(A) 0 (B) 1 (C) 2 (D) 4

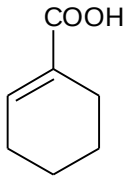
Space for rough work

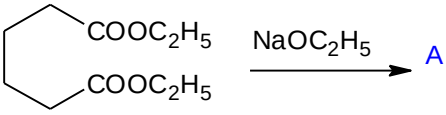
66. Which of the following compound undergo decarboxylation on heating ?

(A) 

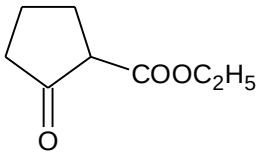
(B) 

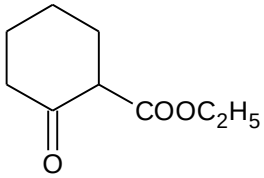
(C) 

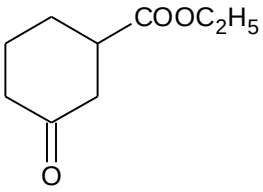
(D) 

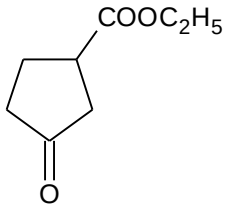
67. 

'A' is :

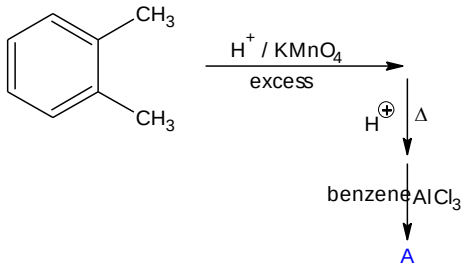
(A) 

(B) 

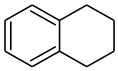
(C) 

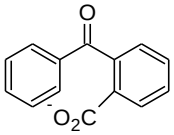
(D) 

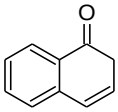
Space for rough work

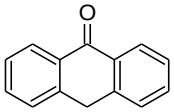
68. 

The structure of the compound (A) in the above reaction is

(A) 

(B) 

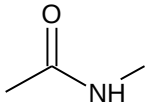
(C) 

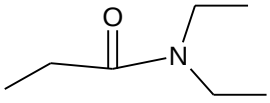
(D) 

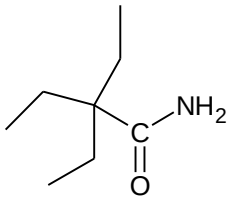
69. Malonic acid and succinic acid are distinguished by
(A) heating (B) with $NaHCO_3$ (C) $KMnO_4$ (D) PCl_5

70. Which of the following acids on heating loses a molecule of H_2O to form an α, β-unsaturated acid?
(A) $CH_3CHOHCOOH$ (B) $HOCH_2COOH$
(C) $CH_2CHOHCH_2COOH$ (D) $HOCH_2CH_2CH_2COOH$

71. Which of the following shows Hoffmann bromamide rearrangement reaction.

(A) 

(B) 

(C) 

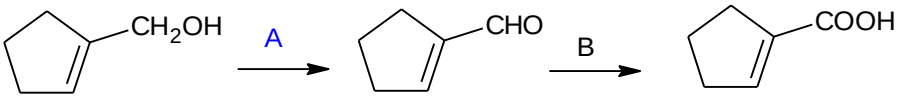
(D) All

Space for rough work

72. Maleic acid $\xrightarrow[\text{cold}]{\text{dil. alk.}KMnO_4}$ A . A is

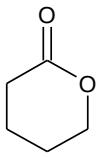
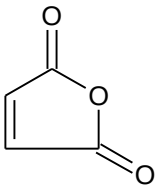
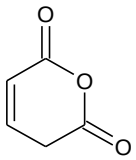
(A) (+) Tartaric acid (B) (–) Tartaric acid
(C) (±) Tartaric acid (D) Meso tartaric acid

73.



Identify correct statement regarding A & B
(A) A = MnO_2 B = Tollen's reagent (B) A = $KMnO_4$ B = Fehling's solution
(C) A = LAH B = Schiff base (D) A = HNO_3 B = $NaBH_4$

74. $C_2H_2 \xrightarrow[(ii)CO_2 \\ (iii)H_3O^+]{(i)\text{ Excess } NaNH_2} A \xrightarrow[\text{Reagent}]{\text{Lindlar's}} B \xrightarrow{\Delta} C$. C is

(A) $COOH–CH_2–CH_2–COOH$ (B)  (C)  (D) 

75. $A \xrightarrow{LAH} CH_3 - CH_2 - OH$ A could be

(A) CH_3COOH (B) $CH_3CO–O–CO–CH_3$ (C) $CH_3–CO–Cl$ (D) All

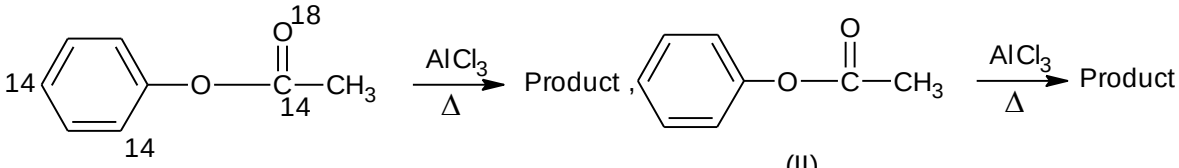
76. The product (D) in the following sequence of reactions is

$CH_3COOH \xrightarrow{NH_3} (A) \xrightarrow{Heat} (B) \xrightarrow{P_2O_5} (C) \xrightarrow{Na+C_2H_5OH} (D)$

(A) ester (B) amine (C) acid (D) alcohol

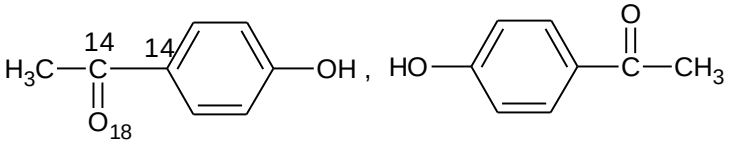
Space for rough work

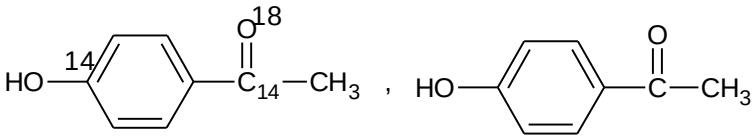
77.



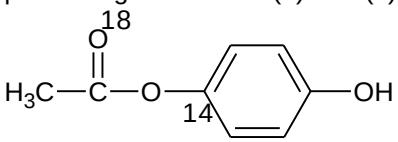
(I) (II)

Compounds (I) and (II) were treated with $AlCl_3$ then which of the following can be formed as products.

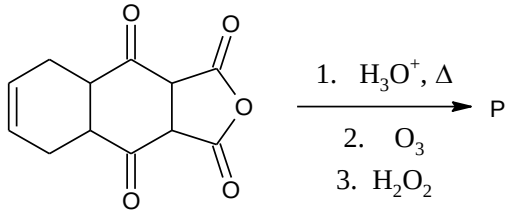
(A) 

(B) 

(C) products given in both (a) and (b) are possible.

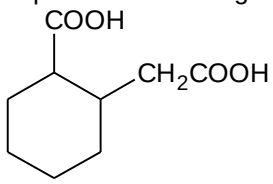
(D) 

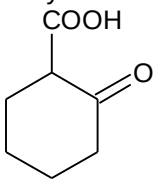
78. The total number of carboxylic acid groups in the product P is

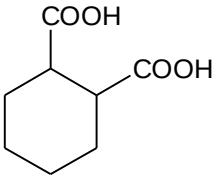


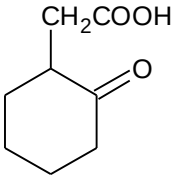
(A) 2 (B) 4 (C) 6 (D) 8

79. The compound that undergoes decarboxylation most readily under mild condition is

(A) 

(B) 

(C) 

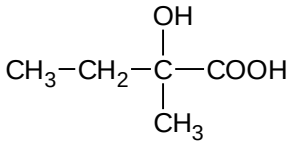
(D) 

Space for rough work

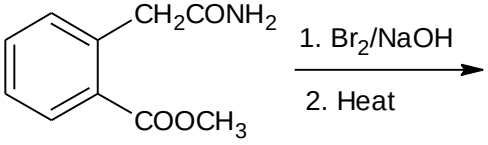
80. The major product H of the given reaction sequence is

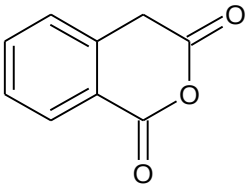
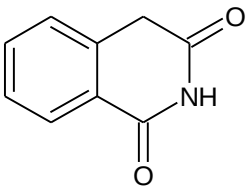
$$CH_3-CH_2-CO-CH_3 \xrightarrow{(-)CN} G \xrightarrow[\text{Heat}]{95\%\ H_2SO_4} H$$

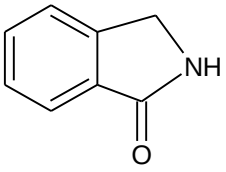
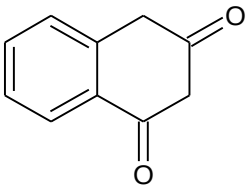
(A) $CH_3-CH=C(CH_3)-COOH$ (B) $CH_3-CH=C(CH_3)-CN$

(C)  (D) $CH_3-CH=C(CH_3)-CO-NH_2$

81. The following reaction gives



(A)  (B) 

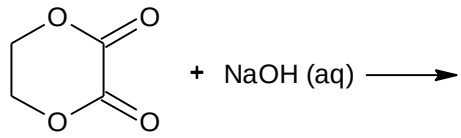
(C)  (D) 

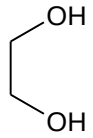
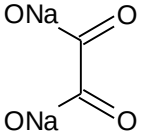
82. Identify Z in the sequence

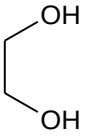
$$CH_3COONH_4 \xrightarrow{\Delta} X \xrightarrow[\Delta]{P_2O_5} Y \xrightarrow{H_2O/H^+} Z$$

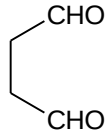
(A) $CH_3CH_2CONH_2$ (B) CH_3CN (C) CH_3COOH (D) $(CH_3CO)_2O$

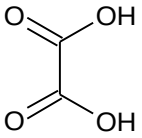
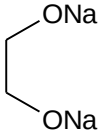
Space for rough work

83.  + NaOH (aq) ⟶

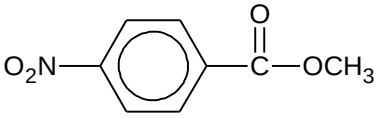
(A)  and 

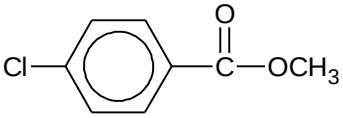
(B)  and 2 CO_2

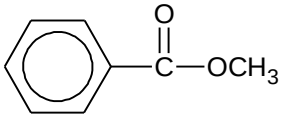
(C)  and Na_2CO_3

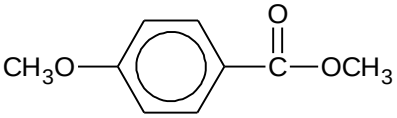
(D)  and 

84. The ease of alkaline hydrolysis is the greatest for

(A) 

(B) 

(C) 

(D) 

85. In $C_6H_5COOCH_3 \xrightarrow{LiAlH_4} X$ will be

(A) $C_6H_5COOH + CH_3OH$

(B) $C_6H_5CH_2OH + CH_3OH$

(C) $C_6H_5CHO + CH_3COOH$

(D) All of the above

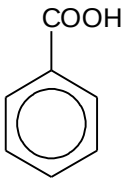
Space for rough work

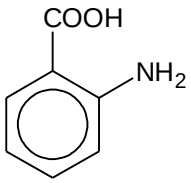
86. Which of the following has high reducing property
(A) CH_3COOH (B) HCOOH (C) $(COOH)_2$ (D) All

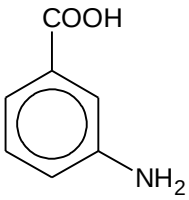
87. $CH_3COOH \xrightarrow{A} CH_3COCl$. A could not be
(A) $SOCl_2$ (B) PCl_5 (C) PCl_3 (D) P_2O_5/Δ

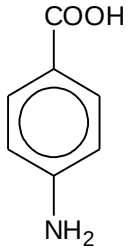
88. Dehydration occurs on heating
(A) Succinic acid (B) Malonic acid
(C) Oxalic acid (D) Adipic acid

89. Lowest pKa among the following is for

(A) 

(B) 

(C) 

(D) 

90. Which of the following gives benzoic acid when treated with acidified $KMnO_4$ solution
(A) $Ph–CH_3$ (B) $Ph–C_2H_5$ (C) Isopropyl benzene (D) All

Space for rough work

FIITJEE PET – V (REG_2ND YEAR)

MAINS_SET–B_ANSWERS

DATE: 21.07.2018

MATHEMATICS

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

PHYSICS

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

CHEMISTRY

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