

**NTSE STAGE II**  
**CODE: 13 – 15**  
**SAT**  
**Held on: May 13, 2018**

1. Under which condition stated below, the six-carbon glucose molecule is broken down into three-carbon molecules pyruvate and lactic acid?
  1. aerobic condition in muscle cells
  2. anaerobic condition in yeast cells
  3. aerobic condition in mitochondria
  4. anaerobic condition in muscle cells
  
2. Which among the following is the correct sequence regarding the flow of impulse in a neuron.
  1. Dendrite → Axon → Cell body
  2. Axon → Cell body → Dendrite
  3. Axon → Dendrite → Cell body
  4. Cell body → Axon → Nerve terminal
  
3. In a hypertensive patient, the systolic pressure increased to 150 mm of Hg. Which part of the brain would be involved in the regulation of blood pressure?
  1. Medulla
  2. Cerebrum
  3. Cerebellum
  4. Hypothalamus
  
4. Edward Jenner's contribution for the eradication of small pox is
  1. his proposition that small pox had possibly spread throughout the world from India and China
  2. his discovery of transformation procedure
  3. his finding that rubbing of the skin crust of small pox victims on the arm of a healthy person, would develop resistance against small pox.
  4. his finding that the cow pox infection protects the person from subsequent infection from small pox.
  
5. Four important events given below may have led to the origin of life on the earth.
  - I. Formation of amino acids and nucleotides
  - II. Availability of water
  - III. Organization of cells
  - IV. Formation of complex molecules

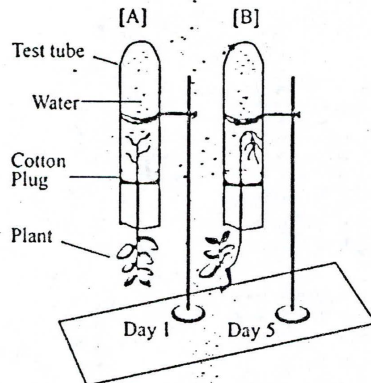
Select the correct sequence of events

  1. I, II, III and IV
  2. II, I, IV and III
  3. I, IV, II and III
  4. II, III, I and IV
  
6. Read the following statements carefully
  - I. Energy transfer in the biotic world always proceeds from the autotrophs.
  - II. Energy flow is unidirectional
  - III. Energy availability is maximum at the tertiary level.
  - IV. There is loss of energy from one trophic level to the other.

Select the relevant statements for the forest ecosystem.

  1. I, II and IV
  2. I, II and III
  3. I, III and IV
  4. II, III and IV
  
7. In a highly pesticide polluted pond, which of the following aquatic organisms will have the maximum amount of pesticide per gram of body mass?
  1. Lotus
  2. Fishes
  3. Spirogyra
  4. Zooplanktons

8. A farmer made an observation in a backwater paddy field of coastal Kerala that the paddy plants wilt during noon onwards everyday but appear normal next morning. What would be the possible reasons for wilting?
1. The rate of water absorption is less than the rate of transpiration in the afternoon.
  2. The rate of water absorption is more than the rate of transpiration in the after noon.
  3. The changes in the rate of water absorption and transpiration are not associated with wilting.
  4. The rate of water absorption is not related to the rate of transpiration.
9. Observe the experimental sets [A] & [B].



Observe the test tube A & B. From the list given below, choose the combination of responses of shoot and root that are observed in B.

1. Positive phototropism and positive geotropism
  2. Negative phototropism and positive geotropism
  3. Positive phototropism and negative geotropism
  4. Only negative phototropism
10. Raw banana has bitter taste, while ripe banana has sweet taste. It happens because of the conversion of
1. Starch to sugar
  2. Sucrose to fructose
  3. Amino acids to sugar
  4. Amino acids to protein
11. In the flowering plants sexual reproduction involves several events beginning with the bud and ending in a fruit. These events are arranged in four different combinations. Select the combination that has the correct sequence of events.
1. Embryo, zygote, gametes, fertilization
  2. Gametes, fertilization, zygote, embryo
  3. Fertilization, zygote, gametes, embryo
  4. Gametes, zygote, embryo, fertilization
12. In pea plants, Round (R) and Yellow (Y) features of seeds are dominant over wrinkled (r) and green (y) features. In a cross between two plants having the same genotypes (RrYy), the following genotypic combinations of offspring are noticed.
- |         |         |
|---------|---------|
| A. RrYY | B. Rryy |
| C. rrYy | D. rryy |
- The phenotypic features of A, B, C and D are given below in an order in four combinations. Select the correct combination of characters that corresponds to the genotypes,
1. Round & yellow; round & green; wrinkled & yellow; wrinkled & green
  2. Round & green; wrinkled & yellow; wrinkled & green; round & yellow
  3. Wrinkled & green; round & yellow; wrinkled & yellow; round & green
  4. Wrinkled & yellow; round & green; wrinkled & yellow; round & yellow

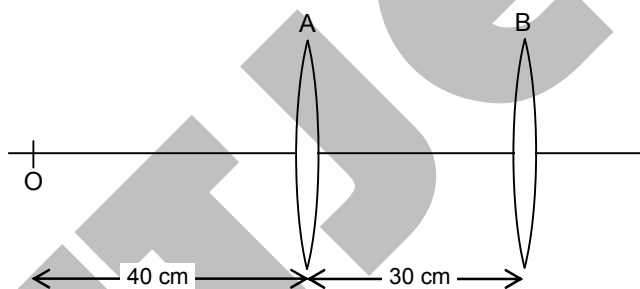
13. Eukaryotic organisms have different levels of organization. Select the combination where the levels are arranged in the descending order.
1. DNA, chromosome, cell, nucleus, tissue
  2. Tissue, cell, nucleus, chromosome, DNA
  3. Nucleus, cell, DNA, chromosome, tissue
  4. Tissue, cell, chromosome, nucleus, DNA
14. The gaseous by product of a process in plants is essential for another vital process that releases energy. Given below are four combinations of processes and products. Choose the correct combination.
1. Photosynthesis and oxygen
  2. Respiration and carbon dioxide
  3. Transpiration and water vapour
  4. Germination and carbon dioxide
15. 100 grams oxygen ( $O_2$ ) gas and 100 grams of helium (He) gas are in separate containers of equal volume at  $100^\circ C$ . Which one of the following statement is correct?
1. Both gases would have the same pressure
  2. The average kinetic energy of  $O_2$  molecules is greater than that of He molecules
  3. The pressure of He gas would be greater than that of the  $O_2$  gas.
  4. The average kinetic energy of He and  $O_2$  molecules is same
16. At 298 K and 1 atm pressure, a gas mixture contains equal masses of He,  $H_2$ ,  $O_2$  and  $NH_3$ . Which of the following is correct for their average molecular velocities?
1.  $He > H_2 > NH_3 > O_2$
  2.  $He < H_2 < O_2 < NH_3$
  3.  $H_2 < He < NH_3 < O_2$
  4.  $O_2 < NH_3 < He < H_2$
17. A test tube along with calcium carbonate in it initially weighed 30.08 g. A heating experiment was performed on this test tube till calcium carbonate completely decomposed with evolution of a gas. Loss of weight during this experiment was 4.40 g. What is the weight of the empty test tube in this experiment?
1. 20.08 g
  2. 21.00 g
  3. 24.50 g
  4. 2.008 g
18. Match list-I (Mixture to be separated) with the list – II (Method used) and select the correct option using the codes given below:
- |     | <b>List – I<br/>(Mixture to be separated)</b> |       | <b>List – II<br/>(Method used)</b> |
|-----|---|-------|------------------------------------|
| (A) | Petroleum products                            | (I)   | Chromatography                     |
| (B) | Camphor and rock salts                        | (II)  | Centrifugation                     |
| (C) | Cream from milk                               | (III) | Sublimation                        |
| (D) | Coloured components in a dye                  | (IV)  | Fractional distillation            |
1. A – I, B – II, C – III, D – IV
  2. A – II, B – IV, C – III, D – I
  3. A – IV, B – III, C – I, D – II
  4. A – IV, B – III, C – II, D – I
19. In the balanced chemical equation:  
(**a** lead nitrate + **b** aluminium chloride → **c** aluminium nitrate + **d** lead chloride)  
Which of the following alternatives is correct?
1. **a** = 1, **b** = 2, **c** = 2, **d** = 1
  2. **a** = 4, **b** = 3, **c** = 3, **d** = 4
  3. **a** = 2, **b** = 3, **c** = 2, **d** = 3
  4. **a** = 3, **b** = 2, **c** = 2, **d** = 3
20. The correct order of increasing number of alpha particles passing undeflected through the foils of Au, Ag, Cu and Al of 1000 atoms thickness each in a simulated alpha particles scattering experiment of Rutherford would be
1. Au < Ag < Cu < Al
  2. Al < Cu < Ag < Au
  3. Au < Cu < Al < Ag
  4. Ag < Cu < Al < Au

21. The correct order of increasing pH values of the aqueous solutions of baking soda, rock salt, washing soda and slaked lime is
1. Baking soda < Rock salt < Washing soda < Slaked lime
  2. Rock salt < Baking soda < Washing soda < Slaked lime
  3. Slaked lime < Washing soda < Rock salt < Baking soda
  4. Washing soda < Baking soda < Rock salt < Slaked lime
22. How many grams of oxygen gas will be needed for complete combustion of 2 moles of 3<sup>rd</sup> member of alkyne series?
1. 186 g
  2. 256 g
  3. 352 g
  4. 372 g
23. Match List – I (Position of the metal in the activity series) with the List – II (Related reduction process) and select the correct option using the codes given below.

	<b>List – I (Position of the metal in the activity series)</b>		<b>List – II (Related reduction process)</b>
(A)	The bottom of the series	(I)	Electrolysis
(B)	The top of the series	(II)	Reduction by heat alone
(C)	The lower regions of the series	(III)	Found in native state
(D)	The middle of the series	(IV)	Reduction using carbon or some other reducing agent

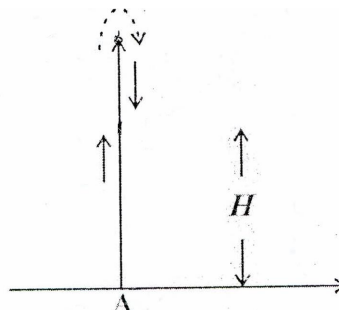
1. A – II, B – III, C – IV, D – I
  2. A – II, B – I, C – IV, D – III
  3. A – III, B – I, C – II, D – IV
  4. A – III, B – I, C – IV, D – II
24. Which of the following statements can help a chemistry student to predict chemical properties of an element?
- I. Position of element in the periodic table
  - II. Atomic number of the element
  - III. Number of shells in the atom
  - IV. Number of electrons in the outer most shell
1. I, II and III
  2. I, II and IV
  3. I, III and IV
  4. II, III and IV
25. Consider the elements A, B, C and D with atomic numbers 6, 7, 14 and 15, respectively. Which of the following statements are correct concerning these elements?
- I. D will lose electron more easily than C.
  - II. B will gain electron more easily than C.
  - III. The element with highest electronegativity is D.
  - IV. The element with largest atomic size is C.
1. I and II
  2. II and III
  3. II and IV
  4. III and IV
26. A hydrocarbon 'A' (C<sub>3</sub>H<sub>8</sub>) on treatment with chlorine in presence of sunlight yielded compound 'B' as major product. Reaction of 'B' with aqueous KOH gave 'C' which on treatment with concentrated H<sub>2</sub>SO<sub>4</sub> yielded 'D'. Hydrogenation of 'D' gave back 'A'. The sequence of reactions involved in above conversion is:
1. Substitution, Substitution, Addition, Dehydration
  2. Substitution, Substitution, Dehydration, Addition
  3. Substitution, Dehydration, Addition, Addition
  4. Addition, Substitution, Dehydration, Substitution

27. An organic liquid 'A' with acidified potassium dichromate gave product 'B'. The compound 'B' on heating with methanol in presence of concentrated sulphuric acid formed compound 'C' which on subsequent treatment with sodium hydroxide formed two products 'D' and 'E'. The product 'D' is known to affect the optic nerve causing blindness. Intake of 'D' in very small quantities can cause death. What are compounds 'A', 'B', 'C', 'D' and 'E'?
1. A = Ethanol, B = Ethanoic acid, C = Methyl ethanoate, D = Sodium acetate, E = Methyl ethanoate
  2. A = Ethanol, B = Ethanoic acid, C = Methyl ethanoate, D = Methanol, E = Sodium acetate
  3. A = Sodium acetate, B = Ethanoic acid, C = Methyl ethanoate, D = Methanol, E = Methanol
  4. A = Ethanol, B = Ethanoic acid, C = Methyl ethanoate, D = Sodium acetate, E = Methanol
28. Two nichrome wires A and B, each of length 5 cm and of radius 1 cm and 3 cm respectively are connected to each other in series. If a current of 5 A flows through the combination of wires, the ratio of potential difference across wire A to that across wire B will be:
1. 1 : 3
  2. 3 : 1
  3. 9 : 1
  4. 1 : 9
29. Two convex lens A and B, each of focal length 30 cm are separated by 30 cm, as shown in the figure. An object O is placed at a distance of 40 cm to the left of lens A.



What is the distance of the final image formed by this lens system?

1. 120 cm to right of lens A
  2. 90 cm to right of lens B
  3. 22.5 cm to right of lens B
  4. 45 cm to right of lens B
30. A cart of mass  $M$  moves at a speed  $u$  on a frictionless surface. At regular intervals of length  $L$ , blocks of mass  $m = \frac{M}{2}$  drops vertically into the cart. How much time is taken to cover a distance of  $\frac{9}{2}L$ ?
1.  $\frac{9L}{2u}$
  2.  $\frac{5L}{2u}$
  3.  $\frac{19L}{2u}$
  4.  $\frac{17L}{2u}$
31. A ball is thrown vertically up from the point A (See figure). A person, standing at a height  $H$  on the roof atop a building, tries to catch it. He misses the catch, the ball overshoots and simultaneously the person starts a stop-watch. The ball reaches its highest point and then manages to catch it upon its return. By this time, a time interval  $T$  has elapsed as recorded by the stop-watch. If  $g$  is the acceleration due to gravity at this place, the speed with which the ball was thrown from point A will be

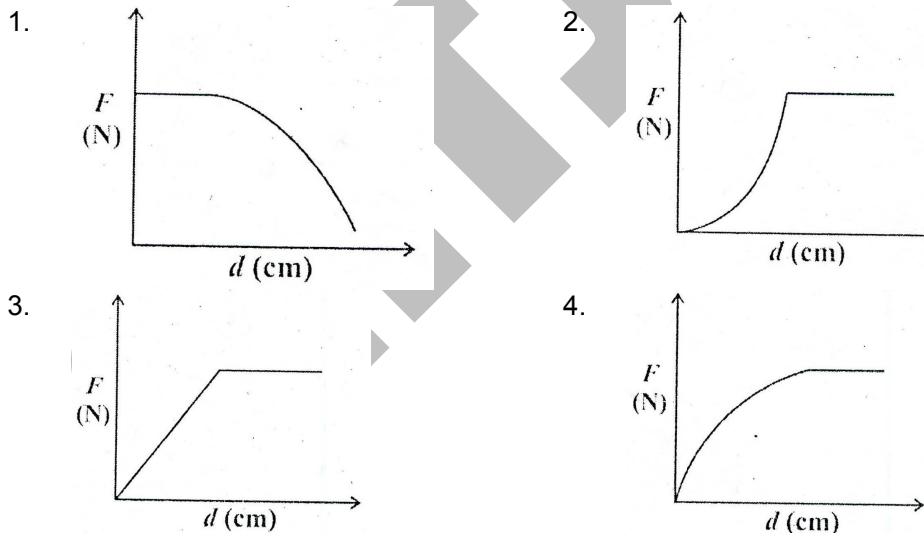
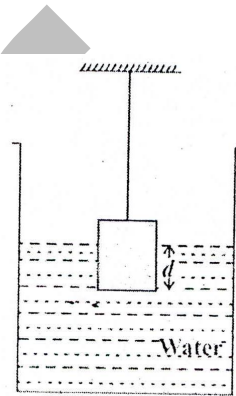


1.  $\sqrt{gH} + gT$
2.  $\frac{(\sqrt{g^2T^2 + 4gH})}{2}$
3.  $\frac{(\sqrt{g^2T^2 + 8gH})}{2}$
4.  $(\sqrt{g^2T^2 + 2gH})$

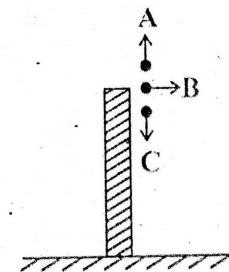
32. A ray of light of pure single colour is incident on the face of a prism having angle of the prism  $30^\circ$  at an angle of incidence  $45^\circ$ . The refracted ray does not change its direction as it crosses the other face and emerges out of the prism. The refractive index of the material of the prism is:

1.  $\frac{2}{\sqrt{3}}$
2. 2
3.  $\sqrt{2}$
4.  $\sqrt{3}$

33. A metallic cubical solid block of side  $L$  is slowly lowered continuously in a large vessel, filled with water. Let  $d$  be the depth of the lower surface of the block, measured from the surface of the water, at some instant. The graph which represents correctly the variation of the buoyant force  $F$  with depth  $d$  is:

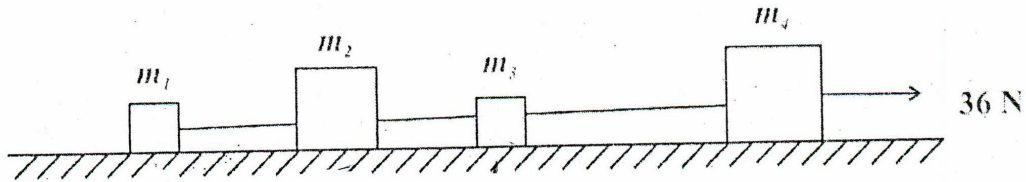


34. Three balls A, B and C of same size but of different masses, are thrown with the same speed from the roof of a building, as shown in figure. Let  $v_A$ ,  $v_B$  and  $v_C$  be the respectively speeds with which the balls A, B and C hit the ground. Neglecting air resistance, which one of the following relations is correct?

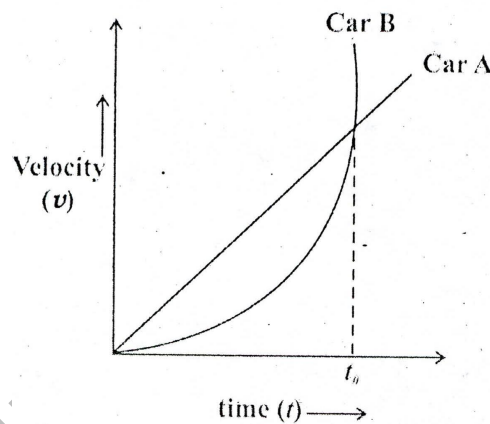


1.  $v_A > v_C > v_B$
2.  $v_C, v_A$  and  $v_B$
3.  $v_A > v_B > v_C$
4.  $v_A = v_B = v_C$

35. Four blocks of different masses ( $m_1 = 1 \text{ kg}$ ,  $m_2 = 2 \text{ kg}$ ,  $m_3 = 1 \text{ kg}$  and  $m_4 = 5 \text{ kg}$ ) are connected with light, inextensible strings, as shown in figure. This system is pulled along a frictionless surface by a horizontal force of 36 N. The force pulling the block of mass  $m_1$  will be

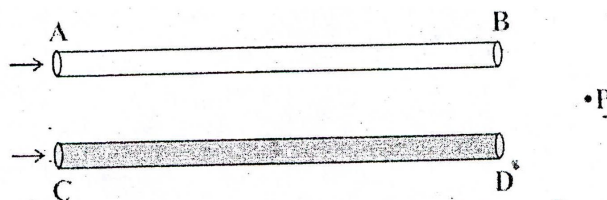


1. 2 N  
2. 4 N  
3. 12 N  
4. 36 N
36. The velocity – time graph of motion of two cars A and B is shown in the figure



Choose the correct statement.

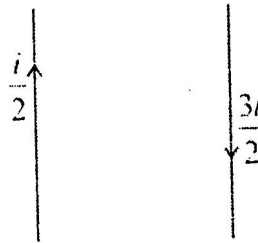
1. Accelerations of two cars are equal to each other at time  $t = t_0$
  2. Accelerations of two cars are equal to each other at an instant greater than  $t_0$
  3. Accelerations of two cars are equal to each other at an instant earlier than  $t_0$
  4. At no instant in the interval  $0 \leq t \leq t_0$ , the two accelerations are equal
37. Three electric bulbs of rating 40 W – 200 V ; 50 W – 200 V and 100 W – 200 V are connected in series to a 600 V supply. What is likely to happen as the supply is switched on?
1. Only 50 W bulb will fuse.
  2. Both 40 W and 50 W bulbs will fuse.
  3. All the three bulbs will emit light with their rated powers.
  4. 100 W bulb will emit light of maximum intensity.
38. A sound wave is sent simultaneously through a long hollow pipe AB and a solid pipe CD of same length and having same cross-sectional area. A person standing at point P as shown in the figure will hear the sound



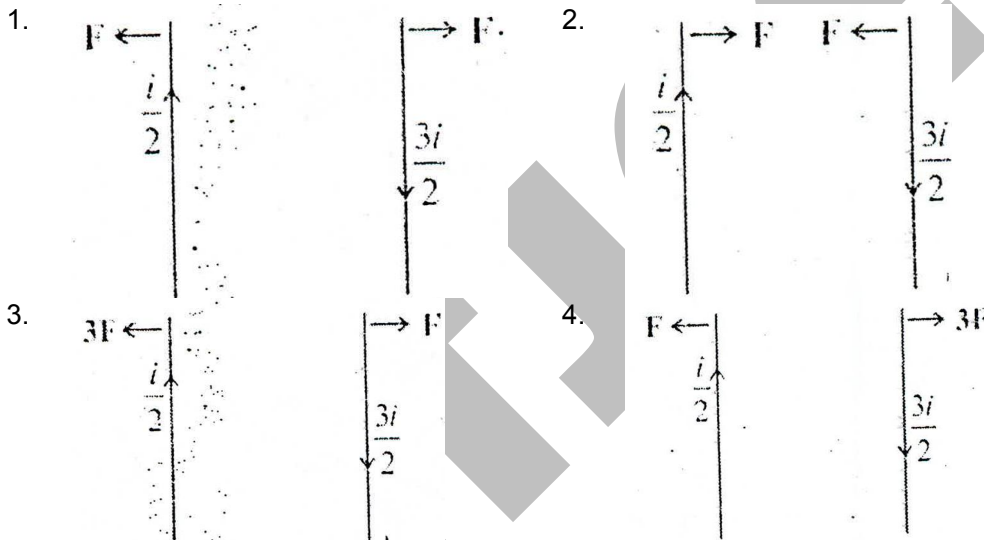
1. at the same time from pipes, AB and CD

2. first from pipe CD and then from pipe AB
3. first from pipe AB and then from pipe CD
4. from pipe AB only and not from pipe CD

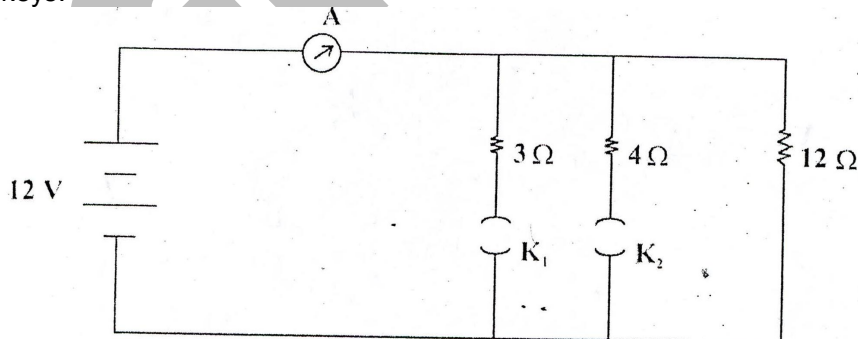
39. Two long current-carrying parallel wires are placed as shown.



Which of the following figures will represent the magnitude and direction of the forces exerted on the wires?



40. An electrical circuit, shown below, consists of a battery, an ammeter, three resistors and two keys.



Consider two cases:

- (i) The key  $K_1$  is closed and the key  $K_2$  is open.
- (ii) The key  $K_2$  is closed and the key  $K_1$  is open.

The ratio of respective currents in these two cases will be:

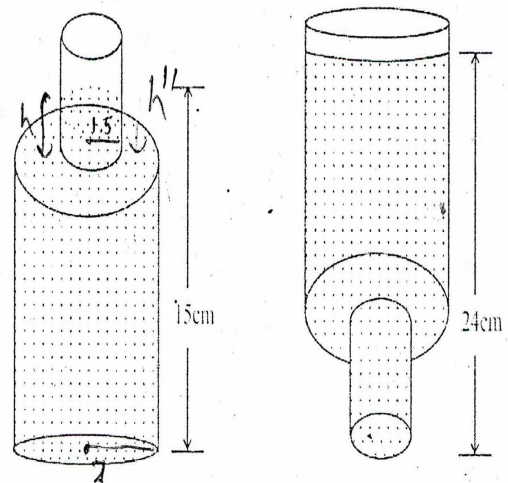
- (1) 3 : 4
- (2) 4 : 3
- (3) 4 : 5
- (4) 5 : 4



41. Given that  $\frac{1}{7} = 0.\overline{142857}$ , which is a repeating decimal having six different digits. If  $x$  is the sum of such first three positive integers  $n$  such that  $\frac{1}{n} = 0.\overline{abcdef}$ , where  $a, b, c, d, e$  and  $f$  are different digits, then the value of  $x$  is  
 (1) 20 (2) 21  
 (3) 41 (4) 42
42. Which of the following digits is ruled out in the units place of  $12^n + 1$  for every positive integer  $n$ ?  
 (1) 1 (2) 3  
 (3) 5 (4) 7
43. The rational roots of the cubic equation  $x^3 + 14kx^2 + 56kx - 64k^3 = 0$  are in the ratio  $1 : 2 : 4$ . The possible values of  $k$  are  
 (1) 0 only (2) 1 only  
 (3) 2, 0 (4) -2, -1
44. The odd natural numbers have been divided in groups as (1, 3); (5, 7, 9, 11); (13, 15, 17, 19, 21, 23);..... Then the sum of numbers in the 10<sup>th</sup> group is  
 (1) 4000 (2) 4003  
 (3) 4007 (4) 4008
45. If the polynomial  $x^4 - 6x^3 + 16x^2 - 25x + 10$  is divided by another polynomial  $x^2 - 2x + k$ , the remainder comes out to be  $x + a$ , then the value of  $a$  is  
 (1) -1 (2) -5  
 (3) 1 (4) 5
46. The values of  $k$ , so that the equations  $2x^2 + kx - 5 = 0$  and  $x^2 - 3x - 4 = 0$  have one root in common, are  
 (1)  $3, \frac{27}{2}$  (2)  $9, \frac{27}{4}$   
 (3)  $-3, \frac{-27}{4}$  (4)  $-3, \frac{4}{27}$
47. The value of  $\cos x^\circ - \sin x^\circ$  ( $0 \leq x < 45$ ) is  
 (1) 0 (2) positive  
 (3) negative (4) sometimes negative and sometimes positive
48. A vertical pole of height 10 metres stands at one corner of a rectangular field. The angle of elevation of its top from the farthest corner is  $30^\circ$ , while that from another corner is  $60^\circ$ . The area (in  $m^2$ ) of rectangular field is  
 (1)  $\frac{200\sqrt{2}}{3}$  (2)  $\frac{400}{\sqrt{3}}$   
 (3)  $\frac{200\sqrt{2}}{\sqrt{3}}$  (4)  $\frac{400\sqrt{2}}{\sqrt{3}}$

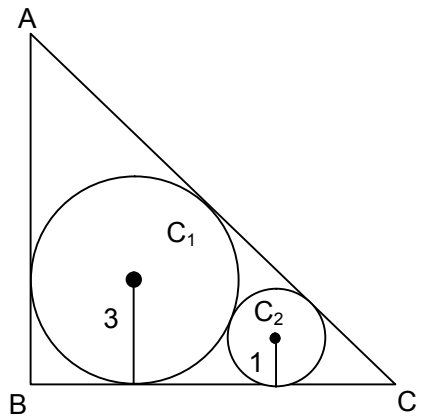
49. A circle is inscribed in a square and the square is circumscribed by another circle. What is the ratio of the areas of the inner circle to the outer circle?
- (1)  $1 : 2$  (2)  $1 : \sqrt{2}$   
 (3)  $\sqrt{2} : 4$  (4)  $1 : \sqrt{3}$
50. The surface of water in a swimming pool, when it is full of water, is rectangular with length and breadth 36m and 10.5 m respectively. The depth of water increases uniformly from 1 m at one end to 1.75 m at the other end. The water in the pool is emptied by a cylindrical pipe of radius 7 cm at the rate of 5 km/h. The time (in hours) to empty water in the pool is (take  $\pi = \frac{22}{7}$ )
- (1)  $6\frac{1}{4}$  (2)  $6\frac{1}{2}$   
 (3)  $6\frac{3}{4}$  (4)  $6\frac{4}{5}$
51. There is a right circular cone of height  $h$  and vertical angle  $60^\circ$ . A sphere when placed inside the cone, it touches the curved surface and the base of the cone. The volume of sphere is
- (1)  $\frac{4}{3}\pi h^3$  (2)  $\frac{4}{9}\pi h^3$   
 (3)  $\frac{4}{27}\pi h^3$  (4)  $\frac{4}{81}\pi h^3$

52. A sealed bottle containing some water is made up of two cylinders A and B of radius 1.5 cm and 3 cm respectively; as shown in the figure. When the bottle is placed right up on a table, the height of water in it is 15 cm, but when placed upside down, the height of water is 24 cm. The height of the bottle is
- (1) 25 cm  
 (2) 26 cm  
 (3) 27 cm  
 (4) 28 cm



53. Let  $\ell$  be the length of each equal side of an isosceles triangle. If the length of each equal side is doubled, keeping its height unchanged, then the difference of the squares of bases of the new triangle and the given triangle is
- (1) 0 (2)  $4\ell^2$   
 (3)  $9\ell^2$  (4)  $12\ell^2$

54. In the adjoining figure, ABC is a triangle in which  $\angle B = 90^\circ$  and its incircle  $C_1$  has radius 3. A circle  $C_2$  of radius 1 touches sides AC, BC and the circle  $C_1$ . Then length AB is equal to
- (1)  $3 + 6\sqrt{3}$  (2)  $10 + 3\sqrt{2}$   
 (3)  $10 + 2\sqrt{3}$  (4)  $9 + 3\sqrt{3}$



55. In  $\triangle ABC$ ,  $AB = AC$ , P and Q are points on AC and AB respectively such that  $BC = BP = PQ = AQ$ . Then  $\angle AQP$  is equal to (use  $\pi = 180^\circ$ )
- (1)  $\frac{2\pi}{7}$  (2)  $\frac{3\pi}{7}$   
 (3)  $\frac{4\pi}{7}$  (4)  $\frac{5\pi}{7}$
56. A line from one vertex A of an equilateral  $\triangle ABC$  meets the opposite side BC in P and the circumcircle of  $\triangle ABC$  in Q. If  $BQ = 4$  cm and  $CQ = 3$  cm, then PQ is equal to
- (1) 7 cm (2)  $\frac{4}{3}$  cm  
 (3)  $\frac{12}{7}$  cm (4) 2 cm
57. How many points (x, y) with integral co-ordinates are there whose distance from (1, 2) is two units?
- (1) one (2) two  
 (3) three (4) four
58. If the vertices of an equilateral triangle have integral co-ordinates, then
- (1) such a triangle is not possible  
 (2) the area of the triangle is irrational  
 (3) the area of the triangle is an integer  
 (4) the area of the triangle is rational but not an integer
59. A box contains four cards numbered as 1, 2, 3 and 4 and another box contains four cards numbered as 1, 4, 9 and 16. One card is drawn at random from each box. What is the probability of getting the product of the two numbers so obtained, more than 16?
- (1)  $\frac{5}{8}$  (2)  $\frac{1}{2}$   
 (3)  $\frac{3}{8}$  (4)  $\frac{1}{4}$
60. The mean of a group of eleven consecutive natural numbers is m. What will be the percentage change in the mean when next six consecutive natural numbers are included in the group?
- (1) m% (2)  $\frac{m}{3}$ %  
 (3)  $\frac{m}{300}$ % (4)  $\frac{300}{m}$ %

61. The swaraj flag designed by Mahatma Gandhi had the spinning wheel in it. What did it symbolize?
- (1) Ideal of self – help
  - (2) Symbol of defiance to the British rule.
  - (3) Greatness of India in pre – colonial time.
  - (4) Ahinsa (non – violence) in contemporary world.
62. Which of the following statements regarding the Silk Routes are correct?
- I. They also meant cultural links.
  - II. They spread over land and by sea.
  - III. They connected Asia with Europe and Africa.
  - IV. Besides textiles, gold and silver got exported from Asia to Europe through these routes.
- |                    |                       |
|--------------------|-----------------------|
| (1) I, II and III  | (2) I, II and IV      |
| (3) II, III and IV | (4) I, II, III and IV |
63. Which of the following statements regarding the impact of Depression of 1929 are correct?
- I. India's exports increased but imports decreased.
  - II. India's export of gold increased.
  - III. Urban India suffered more than the rural India.
  - IV. Industrial investment grew in India
- |                    |                  |
|--------------------|------------------|
| (1) I, II and III  | (2) I, II and IV |
| (3) II, III and IV | (4) II and IV    |
64. Which of the following statements about the French in Vietnam are correct?
- I. The Vietnamese teachers generally twisted the school curriculum given by the French
  - II. The students protested the undue dominance by the colons.
  - III. The Annamese Student was a French journal for enlisting the students support.
  - IV. The French had to counter the Chinese influence.
- |                   |                    |
|-------------------|--------------------|
| (1) I, II and III | (2) I, II and IV   |
| (3) I, III and IV | (4) II, III and IV |
65. Read the statements about the impact of forest rules on tribal communities in the 19<sup>th</sup> century. Which of the following statements are incorrect?
- I. Jhum cultivators could carry out their activities in village forests.
  - II. Jhum cultivators took to plough cultivation with ease.
  - III. Tribal people could collect wood and graze cattle in the forests.
  - IV. Tribal people had access to protected forests for collecting wood for fuel and house building.
- |               |               |
|---------------|---------------|
| 1. I and II   | 2. I and III  |
| 3. II and III | 4. III and IV |
66. Which of the following statements about the Non-cooperation Movement are correct?
- I. The Justice Party participated in the elections in Madras.
  - II. The nationalist lawyers did not join back the courts.
  - III. The taluqdars were targeted.
  - IV. The import of foreign cloth declined and the export of Indian textiles increased manifold.
- |                  |                   |
|------------------|-------------------|
| 1. I and III     | 2. I and IV       |
| 3. I, II and III | 4. II, III and IV |

67. Which of the following regarding the Constitution of 1791 and the status of women in France are correct?
- It made them active citizens.
  - Provisions were made for schools for both boys and girls.
  - Divorce rules were made stringent.
  - Provisions were made for training women for jobs.
- |                  |                   |
|------------------|-------------------|
| 1. I, II and III | 2. II and IV      |
| 3. III and IV    | 4. II, III and IV |
68. Arrange the following historical developments in a chronological sequence
- Rowlatt Act
  - Jheda Satyagraha
  - Champaran Movement
  - Ahmedabad Mill Strike
- |                   |                   |
|-------------------|-------------------|
| 1. I, II, III, IV | 2. II, I, III, IV |
| 3. III, I, IV, II | 4. III, II, IV, I |

**Direction (Questions 69 – 74):** Read the statements and select the correct answer from the options given below.

- Statement I is true, Statement II is false.
  - Statement I is false, Statement II is true.
  - Both Statements are true; and Statement II provides explanation to Statement I.
  - Both Statements are true; but Statement II does not provide explanation to Statement I.
69. **Statement I:** In the 19<sup>th</sup> century, London was a colossal city.  
**Statement II:** London had grown as an industrial city.
70. **Statement I:** Indians not taking off their turban before colonial officials was considered offending.  
**Statement II:** Turban was a sign of respectability in India.
71. **Statement I:** Louis Blanc build a cooperative community.  
**Statement II:** He believed the community could produce goods together and divide the profits among the members.
72. **Statement I:** Hand printing developed in China.  
**Statement II:** The Chinese state printed textbooks in vast numbers.
73. **Statement I:** Rainfall is low in the western parts of Deccan Plateau and East of Sahyadris.  
**Statement II:** Western Ghats causes convectional rainfall.
74. **Statement I:** A large part of the Deccan plateau is occupied by black soil.  
**Statement II:** Black soil in this part was formed by denudation of basaltic rocks overtime.
75. If the local time at Varanasi, located at 83° E longitude is 23:00 hour then what will be the local time at Kibithu located at 97°E longitude (Arunachal Pradesh) and Jodhpur, located at 73°E longitude?
- |                           |                           |
|---------------------------|---------------------------|
| 1. 00:00 hour, 22:00 hour | 2. 22:20 hour, 23:56 hour |
| 3. 23:56 hour, 22:20 hour | 4. 22:56 hour, 23:20 hour |
76. Which one of the following statements are true about latitudes and longitudes.
- All latitudes are angular distances measured towards the Pole from the Equator.
  - All longitudes do not join at poles
  - All Parallels and Meridians are imaginary lines
  - Latitudes are used to determine the time of a place
- |                  |                   |
|------------------|-------------------|
| 1. I and II      | 2. I and III      |
| 3. I, II and III | 4. II, III and IV |

77. If the current climatic condition of Srinagar (J&K) with average annual temperature of 13.5°C and annual average precipitation 710 mm get modified and become similar to that of Ranchi (Jharkhand) with annual average temperature 23.7°C and precipitation 1430 mm., which one of the following types of vegetation will become predominant in Srinagar?
1. Tropical Semi Evergreen
  2. Tropical Moist Deciduous
  3. Tropical Dry Deciduous
  4. Tropical Dry Evergreen
78. On a school field trip, a student spotted tigers, turtles, gharials and snakes in their natural habitats. Name the ecological region (delta) where that student had gone.
1. Cauvery
  2. Mahanadi
  3. Godavari
  4. Ganga – Brahmaputra
79. A person traveling by road (shortest distance) from Mangaluru to Machilipatnam will be able to observe natural vegetation types in which of the following sequences?
1. Montane Forest – Tropical Deciduous Forests – Tropical Evergreen Forests
  2. Tropical Evergreen Forests – Tropical Thorn Forests – Tropical Deciduous Forests
  3. Tropical Deciduous Forests – Tropical Evergreen Forests – Montane Forest
  4. Tropical Evergreen Forests – Tropical Deciduous Forests – Mangrove Forests
80. Which of the following statement(s) is/are true with respect to monsoons in India?
- A. The Southwestern Monsoon takes longer duration as compared to retreating Monsoon in covering India.
  - B. The Southwestern Monsoon has a shorter duration as compared to retreating Monsoon in covering India.
  - C. Both the Monsoons take almost the same duration in covering India.
  - D. The Southwestern Monsoon is propelled by the depressions while retreating Monsoon results from the movement of Air Masses.
1. A and D
  2. B only
  3. C only
  4. B and D
81. Which one of the following regions marked on the sketch is an ideal representation with the following characteristics.
- I. The approximate date for arrival of the Southwestern Monsoon is June 15<sup>th</sup>.
  - II. Well developed in Thermal and Nuclear energy production.
  - III. Rich in the production of oil and natural gas
  - IV. Well developed Textile Industry



1. A
3. C

2. B
4. D

82. With increasing urbanization, the main activity which leads to loss of bio-diversity is:
- I. rural-urban migration.
  - II. rapid increase in built-up area.
  - III. increased vehicular pollution.
  - IV. development of big industrial complexes.
- |              |               |
|--------------|---------------|
| 1. I and III | 2. I and IV   |
| 3. II and IV | 4. III and IV |

83. Which one of the following statements is NOT correct about the shaded part on the given outline of India?



1. It has high potential for hydel-power generation
  2. It has the lowest degree of urbanization.
  3. Ragi is an important millet growth here.
  4. IT is famous for religious tourism.
84. Chandimal, Jaysurya and Umesh left their respective villages in Sri Lanka for Chennai in India. Who among the following could be a refugee?
- I. Chandimal, who is an IT professional, could not find a job in Sri Lanka.
  - II. Jaysurya, who left his village due to ethnic conflicts.
  - III. Umesh, whose land and house were destroyed due to Tsunami.
- |                       |                           |
|-----------------------|---------------------------|
| 1. Only Jaysurya      | 2. Only Chandimal         |
| 3. Jaysurya and Umesh | 4. Chandimal and Jaysurya |
85. Consider the following statements about the United Nations Security Council (UNSC):
- I. UNSC consists of 15 members.
  - II. US, Russia and Germany are among the permanent members.
  - III. China is the only Asian nation among the permanent members.
  - IV. All members of the UNSC have veto power.
- Which of the above statements are correct?
- |             |               |
|-------------|---------------|
| 1. I and II | 2. I and III  |
| 3. I and IV | 4. III and IV |
86. Which of these statements about the Election Commission of India are true?
- I. It conducts and controls the election process in the country.
  - II. It gets the voters list updated before the elections.
  - III. It also conducts the Panchayat elections in the country.
  - IV. It approves the election manifestoes of political parties.
- |              |               |
|--------------|---------------|
| 1. I and II  | 2. II and III |
| 3. II and IV | 4. III and IV |

87. Consider the following statements about the Indian Parliament:  
I. It is the ultimate authority to make laws in India  
II. It consists of the President, the Lok Sabha and the Rajya Sabha  
III. It consists of only the Lok Sabha and the Rajya Sabha  
IV. Lok Sabha members are chosen by the people through elections.  
Which of the above statements are correct?  
1. I only  
2. I and III  
3. II and III  
4. I, II and IV
88. Which of the following is the inspiring philosophy of the Constitution of India?  
I. Secularism, Equality, Communism, Democratic Republic  
II. Democratic Republic, Sovereignty, Fraternity  
III. Secularity, Equality, Justice  
IV. Equality, Fraternity, Communalism, Secularism  
1. I and II  
2. I and III  
3. II and III  
4. II and IV
89. Which of the following features of the Indian Judiciary are true?  
I. Integrated judicial system  
II. The Supreme Court is the highest court of appeal  
III. Only the Supreme Court can interpret the constitution  
IV. Public Interest Litigation(PIL) can be filed only in the Supreme Court and the High courts  
1. I, II and III  
2. I, III and IV  
3. I, II and IV  
4. II, III and IV
90. Which of the following statements is NOT true about Indian Federalism?  
1. The Union government is vested with more financial powers than the State government/  
2. Power to legislate on residuary subjects is vested in the Union government/  
3. The name and boundaries of a state can be changed by the Union government without the consent of the concerned state.  
4. The Union legislature can amend any provision of the constitution without the consent of the state governments.
91. Democracy promotes equality through the following:  
I. Universal adult franchise  
II. Equality before law and equal protection of law  
III. Reservation for scheduled castes, scheduled tribes and women  
IV Independent and impartial media  
1. I and II  
2. I, II and III  
3. I, III and IV  
4. II and IV
92. Read the following statements and select one of the four options given below.  
Statement I: Enjoyment of pollution-free water is a fulfillment of right of life.  
Statement II: Release from forced labour is a fulfillment of right of life.  
1. Only I is correct  
2. Only II is correct  
3. Both I and II are correct  
4. Both I and II are incorrect



93. The daily wage of a person in urban areas is Rs 300. The poverty line for a person is fixed at Rs 1000 per month for the urban areas. The following table shows the details of employment of four families living in Mumbai city.

Family	Total days of employment got in a month by the family	Members of the family
Hari	12	3
Tenzin	15	4
Bala	15	5
Phulia	20	5

Identify the family living below poverty line

1. Hari
  2. Tenzin
  3. Bala
  4. Phulia
94. In a particular year, the prices of wheat in a market is Rs 15 per Kg and a farmer produces 100 Kg of wheat. In the next year the price of wheat has fallen to Rs 10 per kg and the farmer produces 120 kgs. If the government wishes to stabilize the income of the farmer, then what will be the minimum support price?
1. Rs 12 Per kg
  2. Rs 12.5 per kg
  3. Rs 13 per kg
  4. Rs 13.5 per kg

95. A country has four groups of people. The table below describes some social indicators of these groups. Identify the group that is the most vulnerable.

Groups	Literacy rate(%)	Life expectancy(years)	Unemployment rate(%)
A	74	82	5
B	93	80	10
C	63	78	15
D	65	78	10

1. A
  2. B
  3. C
  4. D
96. Which of the following statement are correct?
- I. Bank deposits share the essential feature of money.
  - II. Any depositor may demand his deposit at any point of time from a bank.
  - III. Bank must retain all deposits by itself.
1. I and II are true, but III is false
  2. I is true, but II and III are false
  3. I and II are false, but III is true
  4. All statements I, II and III are true

97. Bira and his wife Sheena have two daughters aged 12 and 16. Sheena's mother and father, aged 65 and 72, also live with them. Bira is currently looking for work, but can't find any. His elder daughter completed class 10 and prefers to look for work. Sheena prefers to stay at home to look after house works. How many unemployed members does Bira's family have?
1. 1
  2. 2
  3. 3
  4. 4

98. Which of the following statements are correct?
- I. Globalization has led to increased flow of capital across countries.
  - II. Increase in flows of labour across countries has been larger than the increase in flows of capital
  - III. MNCs spread their production and work with local producers in various countries across the globe.
1. I and II
  2. I and III
  3. II and III
  4. I, II and III

