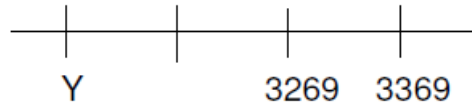# CLASS V to VI
Mathematics

1. Rohit bought an old bicycle for Rs.450 and spent Rs. 85 on its repairing. He sold it for Rs. 455. Find the gain or loss?

    a) Gain Rs.80   b) Loss Rs.5   c) Loss Rs.80   d) Loss Rs.10

2. Diagram shows a number line.

    What is the product of Y and 36?

    a) 3069   b) 110494   c) 3169   d) 110484

3. Keeping the place of 6 in the number 6350947 same, the smallest number obtained by re-arranging other digits is

    a) 6975430   b) 6034579   c) 6043579   d) 6034759

4. The needles of a clock at 3.10 forms _____

    a) An acute angle   b) Right angle   c) An obtuse angle   d) Straight angle

Science

5. Which gas in the air is represented by part-A?

    a) Nitrogen   b) Oxygen

    c) Carbon dioxide   d) Water vapour

6. 0 degree Celsius **:** Freezing point of water **::** _____ **:** Boiling point of water

    a) 110 degree Celsius   b) 100 degree Celsius

    c) 120 degree Celsius   d) 98 degree Celsius

7. The length of your shadow will be shortest at

    a) 12 Noon   b) 10 A.M   c) 5 P.M   d) Same during all times

8. Earth attracts moon by which of the following force?

    a) Electrostatic force   b) Magnetic force

    c) Frictional force   d) Gravitational force

9. Among the following seeds, which seeds are dispersal by water

    a) Lotus   b) Mango   c) Jasmine   d) Apple

10. How many bones are present in our body?

    a) 204   b) 205   c) 206   d) 207

Key

1.c	2.d	3.b	4.a	5.a	6.b	7.a	8.d	9.a	10.c

CLASS VI to VII
## Mathematics

1. The difference between the place value and face value of 3 in the numeral 6,530 is......

   a) 3   b) 27   c) 33   d) 0

2. If first 100 natural numbers are divided in groups of ten each, then the minimum number of primes are in between ....

   a) 1 to 10   b) 51 to 60   c) 81 to 90   d) 91 to 100

3. The product of first five whole numbers is...........

   a) 120   b) 24   c) 0   d) 10

4. In the figure, point 'O' is the centre of the circle. Which two points appear to make a diameter when connected with a straight line?
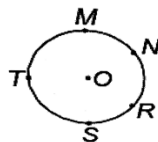
   a) M and S   b) O and R   c) N and S   d) T and R

Physics

5. A car is moving with a speed of 30km/h. How long will it take to cover a distance of 3854m?

   a) 0.128 h   b) 1.28 h   c) 2.81 h   d) 3.63 h

6. Four students A, B, C and D looked through pipes of different shapes to seen a candle flame as shown in figure given below.
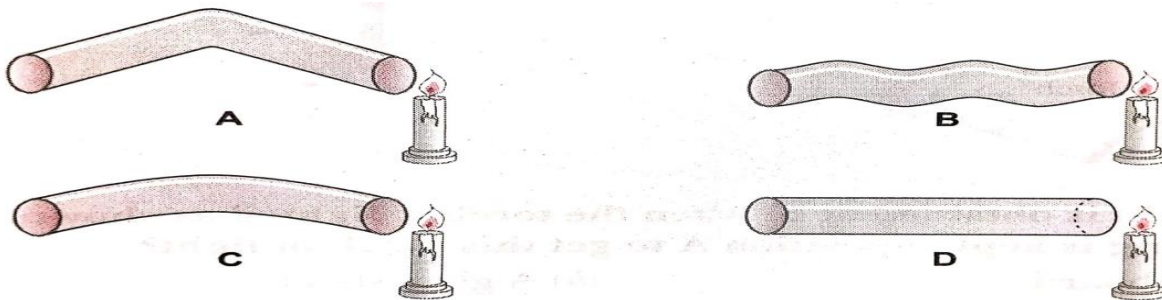
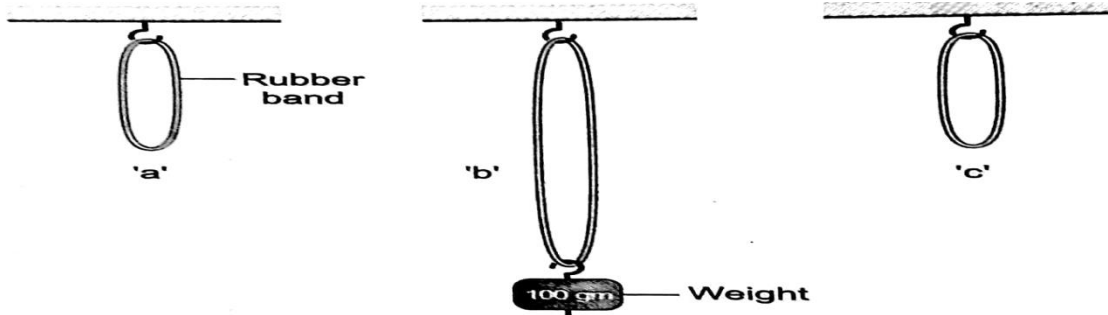   Who will be able to see the candle flame clearly?

   a) A   b) B   c) C   d) D

Chemistry

7. Which among the following methods would be most appropriate to separate grains from bundles of stalks?

    a) Hand picking   b) Winnowing   c) Sieving   d) Threshing

8. Study the figures given below and state the kind of changes they show.

    The above shows an example of a _____ and_____

    a) Reversible, Chemical   b) Reversible, Physical

    c) Irreversible, Chemical   d) Irreversible, Physical

Biology

9. The animals which depends upon other animals for their food known as

    a) Herbivores   b) Carnivores   c) Omnivores   d) None of these

10. Which vitamin can easily destroyed by heat during cooking?
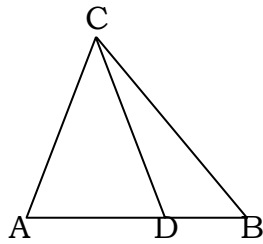
    a) Vitamin-A   b) Vitamin- B   c) Vitamin– C   d) Vitamin-D

KEY:

1.b	2.d	3.c	4.a	5.a	6.d	7.d	8.b	9.b	10.c

CLASS VII to VIII
Mathematics

1. The value of — 6 — [—3 + 12÷ 6 — {7 — (—4 + 20) ÷ 4}]
   a) —2   b) —4   c) 4   d) —3

2. By how much is $x^6 + 3 x^4y^3 + y^6$ more than $x^6 + x^4y^3 - 2y^6$?
   a) $2 x^4 y^3 + 3 y^6$ b) $2 x^4 y^3 - y^6$ c) $2 x4 y3 - 3 y6$ d) $4 x4 y^3 - y^6$

3. In the figure if ∠A=2 ∠B and ∠ACD = 2 ∠DCB, then find the measure of ∠DCB + ∠B.

   a) 60°   b) 90°   c) 45°   d) 75°

4. **Assertion (A):** perimeter of rectangle where length is 10 cm and breadth is 6 cm is 32 cm.

   Reason (R): perimeter of rectangle whose length is '*l*' units and breadth is '*b*' units is 2*(l+b)* units
   a) Both are true and 'R' is correct explanation of A
   b) Both are true and 'R' is not correct explanation of A
   c) Assertion only correct
   d) Reason only correct

PHYSICS

5. In a pressure cooker, the cooking is fast, because _____.

   a) More pressure is available to cook the food at 100°C
   b) More steam is available to cook the food at 100°C
   c) The boiling point of water is raised with increasing pressure inside the cooker.
   d) The boiling point of water is lowered with increased pressure.

6. A plane mirror forms a virtual image. The distance between Rinkoo and her image produced by a plane   mirror is 8 cm. How much distance should she move in order to get the distance of 4m between herself and her image?

   a) 2m away from the mirror   b) 4m towards the mirror

   c) 4m away from the mirror   d) 2m towards the mirror.

CHEMISTRY

7. Identify the correct statement:
   a) China rose indicator turns acidic solutions to dark pink and basic solutions to green.
   b) Turmeric stain on shirt is turned to yellow when it is washed with soap.
   c) Phenolphthalein gives a blue colour with sodium hydroxide solution.
   d) All bases are alkalies

8. Judicious use of water is called

   a) Water pollution   b) Water conservation
   c) Water storage   d)Water irrigation

BIOLOGY:

9. In photosynthesis, CO_2 must first be converted into
   a) glucose   b) sugars   c) peptones   d) galactose

10. Why hot food items should not be packed in polythene bags?
    a) Polythene cools down the hot food
    b) Polythene reacts with hot food and produces cancer causing toxic products
    c) Polythene bag may leak due to hot food.
    d) all of these

KEY:

1.a	2.b	3.a	4.a	5.c	6.d	7.a	8.b	9.a	10.b

CLASS VIII to IX
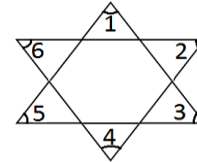## Mathematics

1. If $x - \dfrac{1}{x} = 2$, then the value of $x^2 + \dfrac{1}{x^2}$ is _____.

   a) 2   b) 4   c) 8   d) 6

2. In the given figure;

   The measure of $\angle 1 + \angle 2 + \angle 3 + \angle 4 + \angle 5 + \angle 6$ is _____.

   a) 270°   b) 360°

   c) 180°   d) 90°

3. **Assertion (A)** : $\dfrac{2}{3} + \left[\left(\dfrac{-3}{4}\right) + \left(\dfrac{-9}{8}\right)\right] = \left[\left(\dfrac{2}{3}\right) + \left(\dfrac{-4}{3}\right)\right] + \left(\dfrac{-9}{8}\right)$.

   Reason (R) : Rational numbers are associative under addition.

   a) Both A and R are true and R is the correct explanation of A

   b) Both A and R are true but R is the not correct explanation of A

   c) A is true and R is false

   d) A is false and R is true

4. **Matching :**

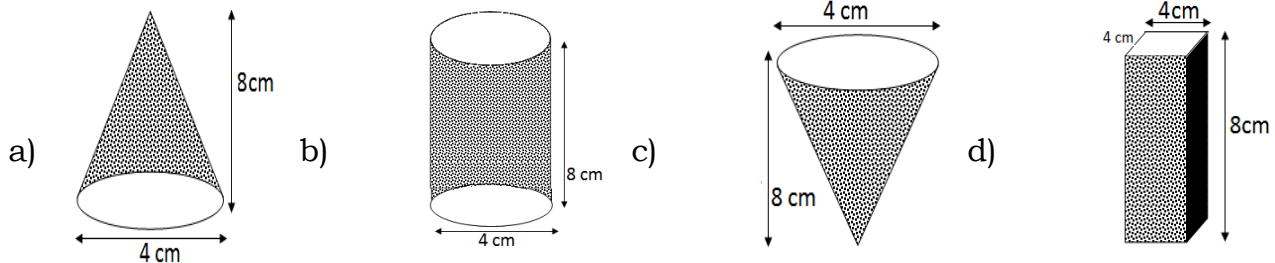| Column – I	Column – II
(A) CSA of Cylinder	(i) $l\,bh$
(B) Volume of Cuboid	(ii) $\pi r^2 h$
(C) Volume of Cylinder	(iii) $6a^2$
(D) TSA of Cube	(iv) $2\pi rh$

   a) A - iv, B – i, C – iii, D - ii   b) A - iv, B – ii, C – iii, D - i

   c) A - iv, B – i, C – ii, D - iii   d) A - iv, B – iii, C – ii, D - i

PHYSICS

5. Which of the following objects exerts the maximum pressure on the floor ?

   (All objects have the same mass)

6. Two objects A and B are moving on rough surface as shown in figure. Object A has greater velocity than B then

   a) A experiences more frictional force than B
   b) B experiences more frictional force than A
   c) Both experience same frictional force
   d) Cannot be said because data is insufficient


A   B
50 kg   100 kg
Rough Surface
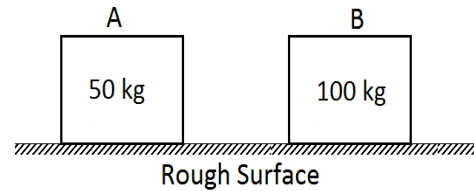
CHEMISTRY

7. A family consumes 12 kg of LPG in 30 days. Calculate the average energy consumed per day. If the calorific value of LPG is 50 kj/kg
   a) 10,000J per day b) 15,000J per day c) 20,000J per day d) 25,000J per day

8. Vidisha placed a copper wire in silver nitrate solution as shown in the figure.

· Cu-wire

Silver nitrate
(colourless)
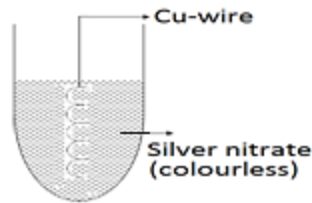
   a) The colour of solution turns blue and precipitate of solid silver was obtained
   b) Colour of solution turned green and copper wire turned blue
   c) There are no change in the colour of solution and colour of the wire
   d) Colour of the solution becomes Silver and there was no change in the colour of the copper wire

BIOLOGY

9. The given figure shows a member of invertebrates.
   Read the statements and choose the correct option.
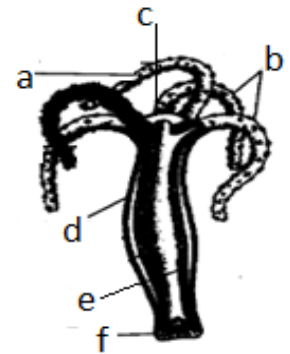
   P) 'c' is used for protection
   Q) The organism belongs to the phylum to which octopus belongs
   R) It locomotes using 'b'
   S) Digestion occurs in 'a' with the help of 'b'
   T) It uses 'a' & 'b' for predation.
   U) The organism lives in marine water & is a colonial form.
   a) P, Q, R are true   b) only R & T are true
   c) only P, S & U are true   d) only S & T are true

10. Which of the following statements is false about meristematic tissue.
    a) Intercalary meristem is found at the base of the leaves & internodes
    b) Intercalary meristem is also called as cambium
    c) Lateral meristum is found in dicots only
    d) Apical meristem forms the basic plant body

Key:

1.d	2.b	3.a	4.c	5.c	6.b	7.c	8.a	9.b	10.b

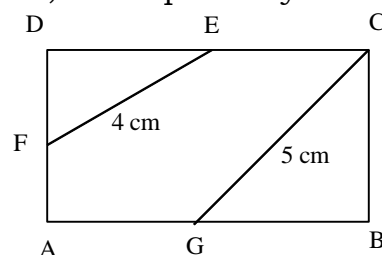## CLASS IX to X

Mathematics

1. There are x^2+5x+6 apples in a bag. If $x+2$ students shared equally among themselves then the number of apples left in the bag is

   a) $x+3$ b) $x+2$ c) 0 d) 2

2. The area of triangle formed by the points $(1,1),(2,2)$ and $(3,3)$ is

   a) 0 b) 1 c) 2 d) 3

3. In a rectangle ABCD, if E,F,G are mid points of CD,AD,AB respectively and EF=4 cm, GC=5 cm, then the area of rectangle is

   a) $\sqrt{39}$ b) $2\sqrt{39}$

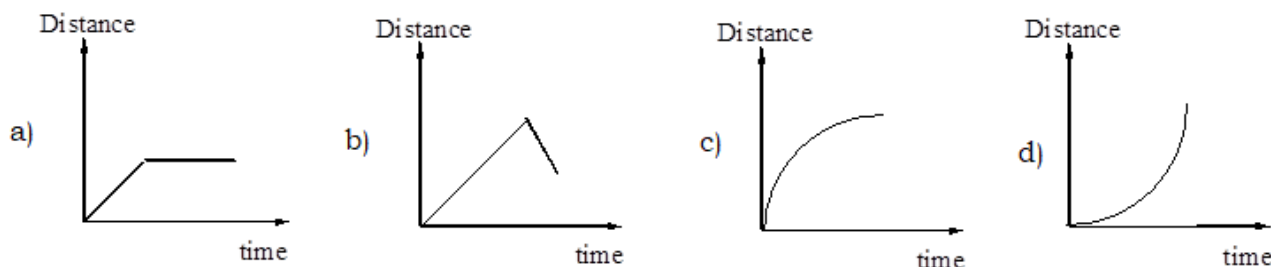   c) $4\sqrt{39}$ d) $\dfrac{\sqrt{39}}{2}$

4. In a right angled triangle with legs 4 and 8, the area of the largest square that can be inscribed in the triangle is

   a) $\dfrac{8}{3}$ b) $\dfrac{4}{3}$

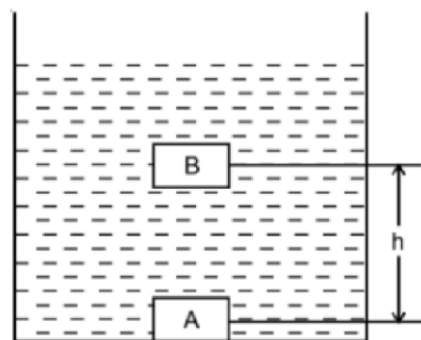   c) $\dfrac{16}{9}$ d) $\dfrac{15}{9}$
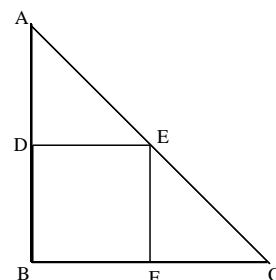
PHYSICS

5. Which of the following distance – time graph is not possible?

6. Two bodies A and B of same dimensions and same material are kept at different heights in a liquid. Which of the following statement is correct?

a) A will experience greater upthrust

b) B will experience greater upthrust

c) Both will experience equal upthrust

d) None of these

CHEMISTRY

7. The constituents of a heterogeneous mixture are X,Y and Z. If the mixture containing X and Y is taken. X can be separated from Y by using magnetic separation. If the mixture containing Y and Z is taken, the two can be separated by using evaporation method. The different states of X, Y and Z are as follows.

a) Solid, Solid, Liquid   b) Solid, Liquid, Solid

c) All are Liquids   d) All are Solids

8. The table given below gives information about four unknown substances . (Room Temperature = 30° C)

Substance	Melting Point (°C)	Boiling Point (°C)
I	-188	-40
II	-110	34
III	16	117
IV	37	340

Which of the following substance is a volatile liquid at room temperature?

a) I   b) II   c) III   d) IV

BIOLOGY

9. Refer to the given table and select the correct option regarding it.

Type of cell	Solvent	Result
RBC	Ringer's solution	X
RBC	Concentrated Salt solution	Y
RBC	Water	Z

	X	**Y**	**Z**
a)	Swollen RBC	Shrunken RBC	Normal RBC

b)   Normal RBC   Shrunken RBC   Swollen RBC

c)   Normal RBC   Swollen RBC   Shrunken RBC

d)   Swollen RBC   Normal RBC   Shrunken RBC

10. Pulse polio immunization programme was launched with an aim to eradicate polio disease. IT involves simultaneous administration of polio drops (polio vaccine) to the high risk population on a single day throughout the nation. What is the basic objective of pulse polio immunization programme?

a) To immunize those children who are not earlier immunized or are partially immunized.

b) To boost the immunity of children already immunized.

c) To eradicate the polio-causing virus from the world.

d) All of these

Key

1.c	2.a	3.c	4.a	5.b	6.c	7.a	8.b	9.b	10.d

## CLASS X to XI

Mathematics

1. The number of real roots of the equation $2^{2x^2-7x+5} = 1$ are

    a) 1   b) 2   c) 4   d) 0

2. If the roots of $ax^2 + bx + c = 0$ are in the ratio of p : q, then the condition is

    a) $pqb^2 = 2ac(p + q)^2$ b) $pqb^2 = ac(p + q)^2$

    c) $pqc^2 = 2ab+(p + q)^2$ d) $pqc^2 = ab(p + q)^2$

3. If $t_n = 3^{n-1}$, then $S_6 - S_5$ = _____.

    a) 243   b) 81   c) 77   d) 27

4. If $a_1, a_2, ..., a_{24}$ are in A.P and $a_1 + a_5 + a_{10} + a_{15} + a_{20} + a_{24}$ = 225, then

    $a_1 + a_2 + a_3 ... ... + a_{24}$ =

    a) 909   b) 75   c) 750   d) 900

5. The base of a right pyramid is an equilateral triangle of perimeter 8 dm and the height of the pyramid is $30\sqrt{3}$ cm. Find the volume of the pyramid.

    a) 16000 cm³   b) 1600 cm³   c) $\dfrac{16000}{3}$ cm³   d) $\dfrac{5}{4}$ cm³

6. In the figure given below, ABCD is a square of side 10 cm and a circle is inscribed in it. find the area of the shaded part as shown in the figure.

    a) $\left(\dfrac{100-36\pi}{41}\right)cm^2$ b) $\left(\dfrac{100-25\pi}{8}\right)cm^2$

    c) $\left(\dfrac{100+25\pi}{8}\right)cm^2$ d) None of these

7. In ΔABC, if AE is median then AB² + AC² =

    a) 2(BD² – DC²)   b) 2(BD² + AD²)   c) 2(AE² + BE²)   d) $\dfrac{1}{2}$ (BD² + AD²)

8. If the internal angle of a polygon is 120⁰ then the number of sides in that polygon is

    a) 4   b) 6   c) 8   d) 10

9. The three vertices of a parallelogram taken in a order are (–1, 0), (3, 1) and (2, 2) respectively. Find the co-ordinates of the fourth vertex.

    a) (–1, 2)   b) (–2, 1)   c) (2, 3)   d) (3, –2)
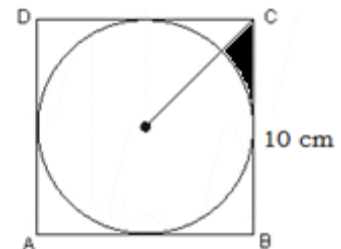
10. If the area of the quadrilateral whose angular points taken in order are (1, 2), (–5, 6), (7, –4) and (h, –2) be zero. Find the value of h.

   a) 2   b) 3   c) 5   d) 6

11. If $5 \sin^2 \theta + 3 \cos^2 \theta = 4$, find the value of $\sin \theta$ and $\cos \theta$.

   a) $\pm \frac{1}{\sqrt{2}}, \pm \frac{1}{\sqrt{2}}$ b) $\pm \frac{\sqrt{3}}{2}, \pm \sqrt{2}$ c) $\frac{\sqrt{3}}{2}, \frac{1}{\sqrt{2}}$ d) none of these

12. If $\tan \theta = \frac{a}{b}$, find the value of $\frac{a \sin \theta - b \cos \theta}{a \sin \theta + b \cos \theta}$

   a) $\frac{a^2 - b^2}{a^2 + b^2}$ b) $\frac{b^2 - a^2}{b^2 + a^2}$ c) $\frac{a^2 + b^2}{a^2 - b^2}$ d) none of these

13. If the shadow of a tower is 30 m when the sun's altitude is 30° what is the length of the shadow when the sun's altitude is 60° ?

   a) $10\sqrt{3}$ m   b) 20 m   c) 10 m   d) 12 m

14. The mean of 20 observations is 12.5. Afterwards it is found that one observation is registered as – 15 instead of 15. The correct mean is

   a) 14   b) 28   c) 15   d) 16

15. The mean of x and $\frac{1}{x}$ is M and mean of y and $\frac{1}{y}$ is N, then the mean of items x^2, y^2, $\frac{1}{x^2}$ and $\frac{1}{y^2}$ is

   a) $M^2 - N^2 + 1$ b) $M^2 + N^2 + 1$ c) $M^2 + N^2 - 1$ d) $M^2 - N^2 - 1$

16. A train starts from station A with uniform acceleration for some distance and then goes with uniform retardation for some more distance to come to rest at station B. The distance between A and B is 4 km and the train takes 4 hours to complete this journey. If acceleration and retardation are in , then

   a) $\frac{a_1}{a_2} = 4$ b) $\frac{1}{a_1} + \frac{1}{a_2} = 2$ c) $a_1 a_2 = 1$ d) $\frac{1}{a_1} + \frac{1}{a_2} = \frac{1}{2}$

17. A man holds a thin stick at its two ends and bend it in an arc like a bow without a string. Which of the following figures correctly show the directions of the force exerted by him on stick?. Neglect gravity.

   a)   b)

   c)   d)
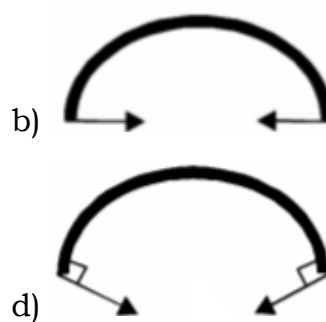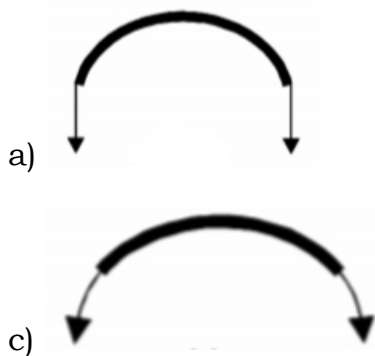
18. The graph between the resistive force F acting on a body and the distance covered by the body is as shown in the graph. The mass of the body is 25 kg and initial velocity is 2 m/s. When the body covers a distance 4 m its kinetic energy would be

F (N)

20

10

1 2 3 4 x (m)
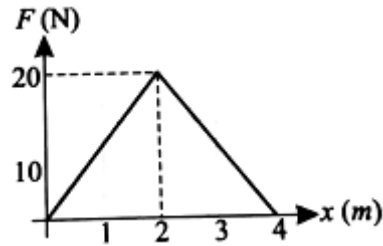
a) 50 J b) 40 J c) 20 J d) 10 J

19. Statement 1: The sun is visible to us before actual sun-rise and after actual sun-set

Statement 2: The density of air is small near the surface of earth as compared to higher altitudes

a) both statements are true and statement 2 is a correct explanation for statement 1

b) both statements are true and statement 2 is not a correct explanation for statement 1

c) statement 1 is true and statement 2 is false

d) statement 2 is true and statement 1 is false

20. Two bodies A and B have masses 20 kg and 5 kg respectively. Each one is acted upon by a force of 4 kg weight . If they acquire same kinetic energy in time t_A and t_B then the ratio $\dfrac{t_A}{t_B}$ is

a) 1/2 b) 2 c) 2/5 d) 1/5

21. A boat has green light of wave length 500 nm on the mast. What wavelength would be measured and what colour would be observed for this light as seen by a diver submerged in water by the side of the boat?(refractive index of water = $\dfrac{4}{3}$)

a) Green of wave length 375nm b) Red of wave length 665 nm

c) Green of wave length 500 nm d) Blue of wavelength 375nm

22. A cut diamond sparkles because of its

a) Hardness

b) High refractive index

c) Emission of light by the diamond

d) Absorption of light by the diamond

23. Same mass of copper is drawn into 2 wires of 1mm thick and 3mm thick. Two wires are connected in series and current is passed. Heat produced in the wires is the ratio of

a) 3 : 1 b) 9 : 1 c) 81 : 1 d) 1 : 81

24. The effective resistance between A and B in the given circuit is

   a) 1.5Ω   b) 7.5Ω   c) 4.7Ω   d) 12.0Ω
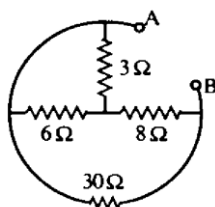
25. A geostationary satellite should be launched such that it moves from

   a) north to south in the polar plane   b) south to north in the polar plane

   c) east to west in the equitorialplane   d) west to east in the equitorial plane

26. Rutherford's experiment, which established the nuclear model of the atom used a beam of

   a) β -particles which impinged on a metal foil and got absorbed

   b) γ -rays which impinged on a metal foil and ejected electrons

   c) helium atoms which impinged on a metal foil and got scattered

   d) helium nuclei which impinged on a metal foil and got scattered

27. 60 gms of lime stone on heating produced 22 gms of CO_2. The percentage of $CaCO_3$ in limestone is

   a) 80%   b) 60%   c) 83.3%   d) 87.66%

28. One litre of CO_2 is passed over red hot coke. The volume becomes 1.4 litre. The composition of products is

   a) 0.6 litre CO   b) 0.8 litre CO_2

   c) 0.6 litre CO_2 and 0.8 litre CO   d) 0.8 litres CO_2 and 0.6 litres of CO

29. Number of gram atoms of oxygen present in 0.3 mole of $(COOH)_2 .2H_2O$ is

   a) 9   b) 18   c) 0.9   d) 1.8

30. The increasing order of metallic character of the elements Si,Be,Mg,Na,P are

   a) $Be < Na < Mg < Si < P$ b) $P < Si < Be < Mg < Na$

   c) $P < Si < Mg < Na < Be$ d) $Be < Na < Mg < Si < P$

31. The electronic configuration of an element is $1s^2 2s^2 2p^6 3s^2 3p^3$. The atomic number of the element which is just below the above element in the periodic table is

   a) 49   b) 31   c) 34   d) 33

32. CH_3COOH does not act as an acid in presence of

   A) HCl   B) Na_2CO_3 C) H_2O D) C_6H_6

   a) all are wrong   b) A and D are correct

   c) A and B are correct   d) C and D are correct

33.

	SET -1		SET-2	
	(Salt Solution)		(Hydrolysis type)	

I) Aqueous solution of $AlCl_3$ A) only anionic hydrolysis

II) Aqueous solution of $(NH_4)2CO_3$ B) only cationic hydrolysis

III) Aqueous solution of NaCl   C) Neither cationic nor anionic

                                                    hydrolysis

IV) Aqueous solution of CH_3COONa D) both cationic and anionic hydrolysis

Correct the matching is

	I	II	II	II
a)	D	C	B	A
b)	B	D	C	A
c)	A	B	C	D
d)	C	A	B	C

34. The IUPAC name of the compound $CH_3 - \overset{\overset{\displaystyle OH}{|}}{C} = CH - CH_2 - COOH$ is

   a) Hydroxy pentenoic acid
   b) 4 - Hydroxy - 3 - pentenoic acid
   c) 4 - Hydroxy - 4 - pentenoic acid
   d) 3 - Hydroxy - 4 - methyl - 3 - ene- pentenoic acid

35. $CH_3COOH \xrightarrow[\Delta]{P_4O_{10}} X$. In this reaction 'X' is

   a) CH_3COCl b) CH_3CONH_2 c) $(CH_3CO)_2O$ d) $CH_3COOC_2H_5$

BIOLOGY

36. Which of the following metabolic pathway is found in living cells of all living organism

   a) Glycolysis   b) Calvin cycle

   c) Krebs cycle   d) Oxidative Phosphorylation

37. The common compound of both aerobic and anaerobic respiration is
   a) Acetyl Co-A   b) Oxalo acetic acid
   c) Pyruvic acid   d) Succinyl Co – A

38. Double fertilization is

   a) fusion of two malegametes of pollentube with two different eggs

   b) fusion of one male gamete with two polarnuclei

   c) syngamy and triplefusion

   d) fusion of two malegamete with one egg

39. Synthesis of one molecule of glucose in C_3 plants require

a) $6CO_2 + 18ATP + 12NADPH$ b) $6CO_2 + 12ATP + 18NADPH$

c) $6CO_2 + 30ATP + 12NADPH$ d) $6CO_2 + 38ATP + 12NADPH$

40. Refer to the given figure and identify the labels A-D
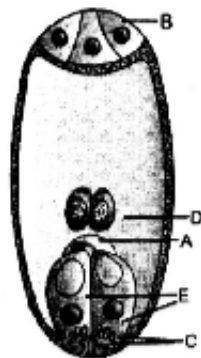
	A	B	C	D
a)	egg cell	antipodal	polar nuclei	synergids
b)	antipoda cells	synergids	centrak cell	egg cell
c)	central cell	antipodal cells	polar nuclie	synergids
d)	egg cell	antipodal cells	synergids	secondary nucleus

41. If RBCs of a student have antigens A and B, his/her serum will have

a) Anti 'A' antibodies   b) Anti 'B' antibodies   c) 1 and 2   d) No antibodies

42. What would happen if the vas deferens is tied up through a small incision on the scrotum

a) Secretion of semen is failed

b) Sperms become immotile

c) Developing sperms are not noursished

d) Semen is without sperms

43. A medical student examines a valve that has been removed from a heart. He observes that the valve has 3 cusps, but no chordae tendineae. What conclusion could be drawn based on those observations?

a) The valve is the tricuspid valve

b) The valve could be either the bicuspid valve or the tricuspid valve

c) The valve is the mitral valve

d) The valve could be either the aortic or the pulmonary valve

44. 'Respiratory rhythm centre' is located in

a) Cerebral hemispheres   b) Pons

c) Medulla oblongata   d) Diencephalon

45. Replacement of the lighter-coloured variety of peppered moth (Bistom betularia) to its darker variety (Bistom carbonaria) in England is the example of

a) Natural selection   b) Reproductive isolation

c) Genetic Isolation   d) Geographical Isolation

Key

1.b	2.b	3.a	4.d	5.c	6.b	7.c	8.b	9.b	10.b
11.a	12.a	13.c	14.a	15.c	16.b	17.b	18.d	19.c	20.b
21.a	22.b	23.c	24.b	25.d	26.d	27.c	28.c	29.d	30.b
31.d	32.b	33.b	34.b	35.c	36.a	37.c	38.c	39.a	40.d
41.d	42.d	43.d	44.c	45.a					