BANSAL CLASSES
PRIVATE LIMITED
*Ideal for Scholars*

**Boost 2017**
**Bansal Open Opportunity Scholarship Test**

# SAMPLE PAPER

**Class : IX** ***Time allowed*** **:** 2 hours ***Maximum Marks*** **:** 240

## GENERAL INSTRUCTIONS

1. The question paper consists of **'60'** objective type questions. Each question carry **4** *marks* and all of them are compulsory.

2. Each question contains four alternatives out of which only **ONE** is correct.

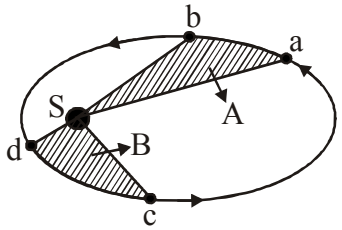
3. There is **NEGATIVE** marking. **1 mark** will be deducted for each wrong answer.

---

Q.1 An aeroplane revolves in a horizontal circle above the surface of the earth with a uniform speed of 100 km/hr. The change in velocity (in km/hr) after completing 1/2 revolution is
(A) 200 (B) 150 (C) 300 (D) 400

Q.2 A bullet of mass A and velocity B is fired into a block of wood of mass C. If loss of any mass and friction be neglected, the velocity of the system must be
(A) $\frac{AB}{A+C}$ (B) $\frac{A+C}{B+C}$ (C) $\frac{AC}{B+C}$ (D) $\frac{A+B}{AC}$

Q.3 The figure shows the motion of a planet around the sun in an elliptical orbital with sun at the focus. The shaded areas A and B shown in the figure are equal. If $t_1$ and $t_2$ represent the time for the planet to move from a to b and d to c respectively, then

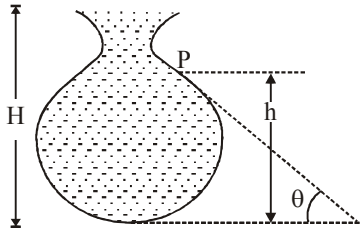



(A) $t_1 < t_2$ (B) $t_1 > t_2$ (C) $t_1 = t_2$ (D) $t_1 \le t_2$

Q.4 A 2 kg block is attached to a horizontal ideal spring with a spring constant of 200 N/m. When the spring has its equilibrium length the block is given a speed of 5m/s. What is the maximum elongation of the spring?
(A) 0 m (B) 0.05 m (C) 0.5 m (D) 10 m

Q.5 A man is at rest in the middle of a pond of perfectly smooth ice. He can get himself to the shore by making use of Newton's
(A) First law (B) Second law (C) Third law (D) All the laws

Q.6 Figure here shows the vertical cross section of a vessel filled with a liquid of density ρ. The normal thrust per unit area on the walls of the vessel at the point P, as shown, will be




(A) hρg (B) Hρg (C) (H – h)ρg (D) (H – h) ρg cos θ

Q.7 Two pieces of metals are suspended from the arms of a balance and are found to be in equilibrium when kept immersed in water. The mass of one piece is 32 g and its density 8 g $cm^{-3}$. The density of the other is 5 g per $cm^3$. Then the mass of the other is
(A) 28 g (B) 35 g (C) 21 g (D) 33.6 g

Q.8 A wave of frequency 1000 Hz travels between X and Y, a distance of 600 m in 2 seconds. The number of wavelengths there in distance XY
(A) 3.3 (B) 300 (C) 180 (D) 2000

Q.9 Chromatography is the technique which is used for separation of those solutes that:
(A) Dissolve in the some solvent (B) Get adsorbed to different extremes
(C) Get aborbed at the same speed (D) Are soluble in aqueous medium

Q.10 The substances that sublime can be made to liquefy by:
(A) Heating them under pressure (B) Heating them at low pressure
(C) Cooling them under pressure (D) Cooling them at low pressure

Q.11 The state of matter which consists of super energetic particles in the form of ionized gases is called :
(A) Gaseous state (B) Liquid state
(C) Bose-Einstein condensate (D) Plasma state

Q.12 Full name of C in CNG is –
(A) Carbon (B) Compressed (C) Coal (D) None

Q.13 The water boils when
(A) saturated vapour pressure of water becomes equal to the atmospheric pressure
(B) boiling point of water becomes more atmospheric pressure
(C) saturated vapour pressure of water is less than atmospheric pressure
(D) vapour pressure of water becomes more than atmospheric pressure

Q.14 Which of the following indicates the relative randomness of particles in the three states of matter?
(A) Solid > liquid > Gas (B) liquid < Solid < Gas
(C) Liquid > Gas > Solid (D) Gas > liquid > Solid

Q.15 Yellow colour of candle light is due to
(A) Non-Luminous zone (B) Dark zone
(C) Luminous zone (D) Blue zone

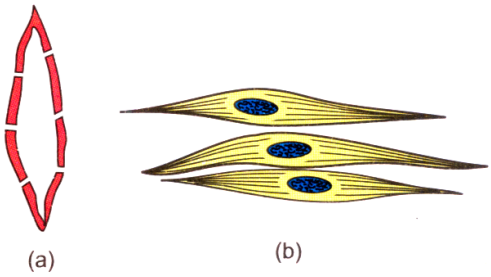
Q.16 The carbon content of Anthracite coal is :
(A) 50-60% (B) 60-70% (C) 75-80% (D) 90-95%

Q.17 Which of these options are not a function of Ribosomes ?
(i) It helps in manufacture of protein molecules
(ii) It helps in manufacture of enzymes
(iii) It helps in manufacture of hormones
(iv) It helps in manufacture of starch molecules
(A) (i) and (ii) (B) (ii) and (iii) (C) (iii) and (iv) (D) (iv) and (i)

Q.18 Find out the correct sentence
(A) Enzymes packed in Lysosomes are made through RER (rough endoplasmic reticulum)
(B) Rough endoplasmic reticulum and smooth endoplasmic reticulum produce lipid and protein respectively
(C) Endoplasmic reticulum is related with the destruction of plasma membrane
(D) Nucleoid is present inside the nucleoplasm of eukaryotic nucleus.

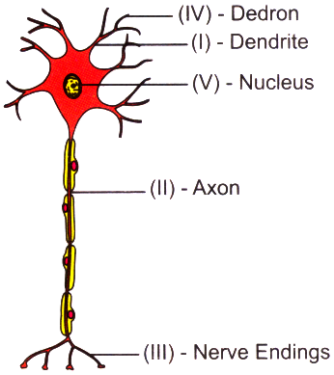
Q.19 A student put five raisins in two beakers. Beaker I has 20 ml of distilled water. Baker II has 20 ml of saturated sugar solution. After some time the student would observe that
(A) Raisins in beaker I were swollen than those of beaker II
(B) Raisins in beaker II were more swollen than those of beaker I
(C) Raisin in both the beakers were equally swollen
(D) Raisin in beaker I did not swell up at all.

Q.20 Correct identification of a and b is




(A) a - Sclerenchyma, b - voluntary muscle (B) a - Voluntary muscle, b - Involuntary muscle
(C) a - Smooth muscle, b - Striped muscle (D) a - Sclerenchyma, b - Smooth muscle.

Q.21 Anuradha observed a slide of nerve cell and drew is diagram. Choose the correct labelling




(A) I, II, III, IV, V are correct (B) V, II, III, are correct
(C) IV, V, II, III are correct (D) Only I and IV an correct

Q.22 Arun, Deepa, Uma and Priya were asked to select plant material which would not give blue-black colour with iodine solution. Who did not select the right material ?

(A) Arun selectred Maize grains (B) Deepa selected Wheat grains
(C)Uma slected Wheat grains (D) Priya slected Potato.

Q.23 Following are five steps for testing metanil yellow in Arhar dal.
(i) Make powder of 5 g of Arhar dal (ii) Put dal powder in a test tube (iii) Add 2-4 drops HCl and observe the change in colour (iv) Filter the content keep the filtrate separately (v) add 10 ml of water and shake it well. The correct sequence is

(A) (i), (ii), (iii), (iv) and (v) (B) (i), (iv), (v), (ii) and (iii)
(C) (i), (iii), (iv), (v) and (i) (D) (i), (ii), (v), (iv), (iii).

Q.24 What is true in a scientific name ?

(A) Specific name is written first
(B) Generic name starts with small letter
(C) Generic name starts with capital alphabet while specific name starts with small letter
(D) It is written in English.

Q.25 Elephantiasis is caused by

(A) Wuchereria (B) Pinworm (C) Planarians (D) Liver flukes.

Q.26 The identifying features of kingdom of Mushroom or Fungi are

(A) Prokaryotes, autotrophs, unicellular (B) Eukaryotes, saprophytes, multicellular at some stage
(C) Cilia, autotrophs, multicellular (D) Unicellular, heterotrophs, no cell wall.

Q.27 If the square root of a number is between 6 and 7, then its cube root lies between

(A) 2 and 3 (B) 2.5 and 3 (C) 3 and 4 (D) 4 and 4.5

Q.28 Given two 4-digit numbers abed and dcba. If a + d = b + c = 7, then their sum is not divisible by

(A) 7 (B) 11 (C) 101 (D) 111

Q.29 If $x = 2 + 2^{1/3} + 2^{2/3}$, then $x^3 - 6x^2 + 6x =$ _____?

(A) 0 (B) 1 (C) 2 (D) 3

Q.30 If $\left[\left\{\left(\frac{1}{7^2}\right)^{-2}\right\}^{-1/3}\right]^{\frac{1}{4}} = 7^m$, then the value of m is

(A) 1/3 (B) –1/3 (C) 2/3 (D) –2/3

Q.31 Value of x satisfying $\sqrt{x+3} + \sqrt{x-2} = 5$, is

(A) 6 (B) 7 (C) 8 (D) 9

Q.32 The expression $x^2 + px + q$ with p and q greater than zero has its minmum value when

(A) x = – p (B) x = p (C) x = p/2 (D) x = – p/2

Q.33 If the three vertices of a rectangle taken in order are the points (2, – 2), (8, 4) and (5, 7). The co-ordinates of the fourth vertex is –

(A) (1, 1) (B) (1, – 1) (C) (–1, 1) (D) none of these

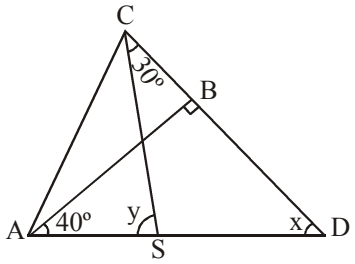
Q.34 Which of the following equations repreents a line parallel to x-axis ?

(A) $3x + 2 = 0$ (B) $3y + 2 = 0$ (C) $3x + 2y = 0$ (D) $3x - 2y = 0$

Q.35 The graph of the linear equation $2x + 3y = 6$ is a line which meets the x-axis at point

(A) (0, 2) (B) (2, 0) (C) (3, 0) (D) (0, 3)

Q.36 In figure, if $AB \perp CD$, $\angle BAD = 40^\circ$ and $\angle SCD = 30^\circ$, find x and y.

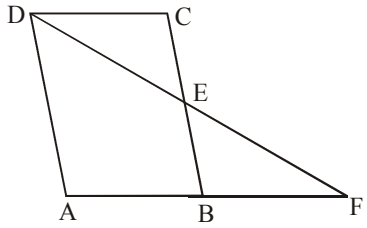



(A) 80°, 50° (B) 50°, 30° (C) 30°, 80° (D) 50°, 80°

Q.37 An angle is 14° more then its complementary angle then angle is –

(A) 38° (B) 52° (C) 50° (D) None of these

Q.38 In the figure ABCD is a parallelogram. E is the midpoint of BC, DF and AB, when produced meet at F, then AB = _____.




(A) $\frac{1}{2}$ AF (B) 2AF

(C) 3AF (D) $\frac{1}{3}$ AF

Q.39 The base BC of triangle ABC is divided at D so that BD = $\frac{1}{2}$ DC. Area of $\Delta ABD$ =

(A) 1/3 of the area of $\Delta ABC$ (B) 1/2 of the area of $\Delta ABC$

(C) 1/4 of the area of $\Delta ABC$ (D) 1/6 of the area of $\Delta ABC$

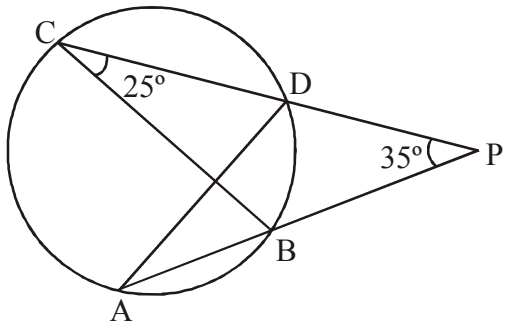
Q.40 The area (in $cm^2$) of the largest triangle that can be inscribed in a semicircle of radius *r* cm is

(A) $\frac{1}{3}\pi r^2$ (B) $2r^2$ (C) $r^2$ (D) $\frac{1}{2}$

Q.41 If in a group of goats and hens, the number of legs is 24 more than twice the number of heads, then the number of goats in the group is

(A) 18 (B) 16 (C) 14 (D) 12

Q.42 In the adjoining figure, chords AB and CD of a circle when produced meet at P. If $\angle APD = 35^\circ$ and $\angle BCD = 25^\circ$, then $\angle ADC$ equal to




(A) 60° (B) 70° (C) 50° (D) 120°

**Direction (Q.43 & Q.44) : In each of the following questions the numbers are arranged in a particular order. Choose the missing number from the given alternatives.**

Q.43 2, 3, 6, 18, ?, 1944

(A) 108 (B) 154 (C) 180 (D) 452

Q.44 110, 99, 86, ?, 54, 35

(A) 81 (B) 79 (C) 67 (D) 71

**Direction (Q.45) : In the following letter series, some of the letters are missing which are given in that order as one of the alternatives below it. Choose the correct alternative.**

Q.45 _ acca _ ccca _ acccc _ aaa

(A) acca (B) caaa (C) ccaa (D) caac

**Direction (Q.46) : In the following question, a series of letters and number is given, the terms of which follow certain definite pattern in groups. However, some terms in the series are missing, which are given in the same order as one of the alternatives below the series. Choose the correct alternative.**

Q.46 2 3 B __ 6 __ F G __ 5 D __ 8 __ H I

(A) C, 7, 4, E, 9 (B) D, 8, 6, C, 7 (C) E, 8, 7, D, 9 (D) W, 8,7, I, 6

**Direction (Q.47) : In the following question, four words have been given out of which three are alike in some manner, while the fourth one is different. Choose out the odd one.**

Q.47 (A) Mumbai (B) Kandla (C) Mysore (D) Vishakhapatnam

Q.48 In a code language, SOLID is written as WPSLPIMFHA. What does the code-word ATEXXQIBVO refer to ?

(A) WATER (B) WAGER (C) EAGER (D) WAFER

Q.49 If ZIP = 198 and ZAP = 246, then how will you code VIP?

(A) 174 (B) 222 (C) 888 (D) 990

Q.50 Seven children A, B, C, D, E, F and G are standing in a line. G is to the right of D and to the left to B. A is on the right of C. A and D have one child between them. E and B have two children between them. D and F have two children between them. Who is on the extreme left?

(A) A (B) B (C) C (D) D

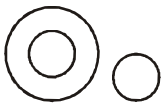
Q.51 If L stands for +, M stands for –, N stands for ×, P stands for ÷, then 14 N 10 L 42 P 2 M 8 = ?

(A) 153 (B) 216 (C) 248 (D) 251

Q.52 If 5 January 1991 was a Saturday, what day of the week was 3 March 1992 ?

(A) Sunday (B) Monday (C) Tuesday (D) Wednesday

Q.53 Which of the following sets is best represented in the given diagram?



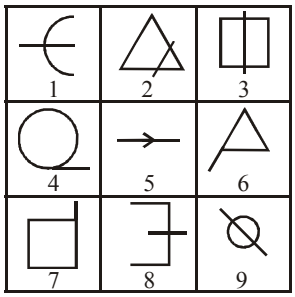
(A) Animals, Insects, Cockroaches (B) Animals, Males, Females and Hermaphrodites

(C) States, Districts, Union Territories (D) Country, States, Districts

Q.54 If A + B > C + D and B + C > A + D, then it is definite that

(A) D > B (B) C > D (C) A > D (D) B > D

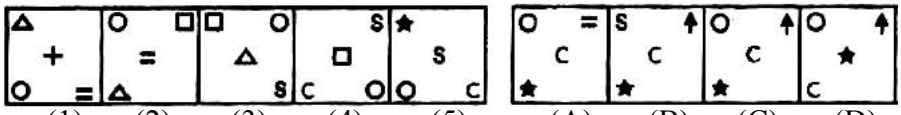
Q.55 In the following question, group the given figures into three classes using each figure only once.




(A) 1,3,9 ; 2,5,8 ; 4,6,7 (B) 1,5,8 ; 4,6,7 ; 2,3,9
(C) 2,5,9 ; 1,3,8 ; 2,6,7 (D) 1,8,9 ; 4,6,7 ; 2,3,5

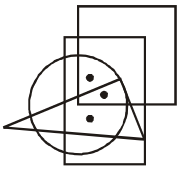
**Direction (Q.56): Each of the following questions consists of five Problems marked 1, 2, 3, 4 and 5. Select a figure from amongst the Answer Figure which will continue the same series as established by the five Problem Figures.**

Q.56 Problem Figures Answer Figure

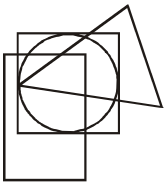
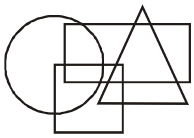


(1) (2) (3) (4) (5) (A) (B) (C) (D)

Q.57 In the following question, from amongst the figures marked (A), (B), (C) and (D), select the one which satisfies the same conditions of placement of the dot as in fig. (X).



(X)

(A)  (B) (C)  (D)

**Direction (Q.58) : Choose the number-letter group which is different from the others.**

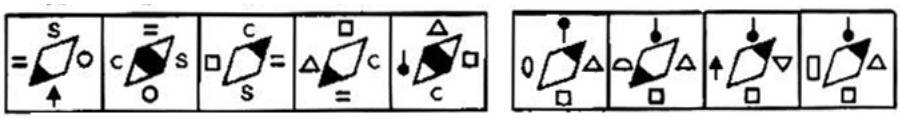
Q.58 (A) DG2 (B) EK5 (C) JR6 (D) PY8

**Direction (Q.59) : Choose the odd numeral pair/group.**

Q.59 (A) 24 – 21 (B) 46 – 32 (C) 62 – 23 (D) 84 – 24

**Direction (60): Each of the following questions consists of five Problems marked 1, 2, 3, 4 and 5. Select a figure from amongst the Answer Figure which will continue the same series as established by the five Problem Figures.**

Q.60 Problem Figures Answer Figure



(1) (2) (3) (4) (5) (A) (B) (C) (D)