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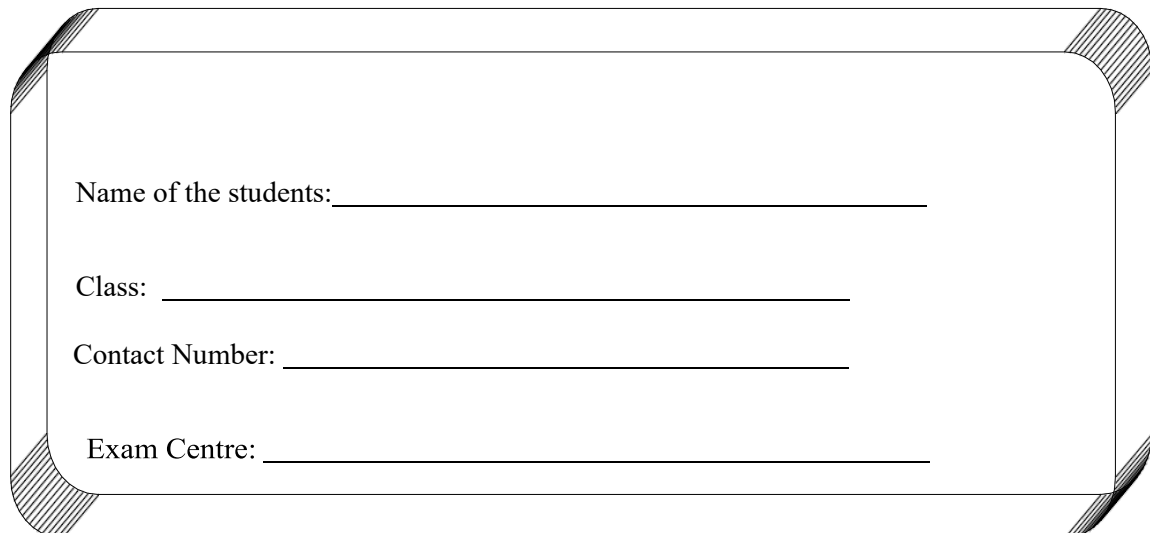
Class: IX

Time allowed : 90 Minutes

Maximum Marks : 120

**PLEASE READ THE INSTRUCTIONS IN QUESTION BOOKLET BEFORE ANSWERING THE QUESTION PAPER.**

1. Before starting the paper, fill up the required details in the given space provided in the question paper cum answer sheet.
2. The question paper consists of '30' objective type questions. Each question carry 4 marks and all of them are compulsory.
3. Each question contains four alternatives out of which only ONE is correct.
4. There is **NO NEGATIVE** marking.
5. For rough work, use the space provided at the bottom of each page. No extra sheet will be provided for rough work and you are not supposed to bring the same.
6. Use of **blank papers, clip boards, log tables, calculator, slide rule, mobile** or any other electronic gadgets in any form is "**NOT PERMISSIBLE**".
7. You must not carry mobile phone even if you have the same, give it to your Invigilator before commencement of the test and take it back from him/her after the exam.
8. The answers of the questions must be marked by **ticking correct on the options** against the question by dark Black/Blue Ball point Pen only.



Name of the students: \_\_\_\_\_

Class: \_\_\_\_\_

Contact Number: \_\_\_\_\_

Exam Centre: \_\_\_\_\_

# Mathematics

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1. If  $x/y + y/x = -1$  ( $x, y \neq 0$ ), then find the value of  $x^3 - y^3$ 
  - (a) 1
  - (b) -1
  - (c) 12
  - (d) 0
2. One of the factors of  $(1 + 3y)^2 + (9y^2 + 1)$  is
  - (a)  $1 - 3y$
  - (b)  $3 - y$
  - (c)  $3y + 1$
  - (d) None of these
3. Find the value of  $k$  if  $x^2 + kx + 6 = (x + 2)(x + 3)$  for all  $k$ .
  - (a) 1
  - (b) -1
  - (c) 5
  - (d) 3
4. Find the value of  $p$  for which  $x + p$  is a factor of  $x^2 + px + 3 - p$ .
  - (a) 1
  - (b) -1
  - (c) 3
  - (d) -3
5. If  $x^{1/3} + y^{1/3} + z^{1/3} = 0$ , then which one of the expression is correct.
  - (a)  $x^3 + y^3 + z^3 = 0$
  - (b)  $x + y + z = 3x^{1/3}y^{1/3}z^{1/3}$
  - (c)  $x + y + z = 3xyz$
  - (d)  $x^3 + y^3 + z^3 = 3xyz$
6. The line segment joining the points  $(3, -1)$  and  $(-6, 5)$  is trisected. The coordinates of point of trisection are
  - (a)  $(3, 3)$
  - (b)  $(-3, 3)$
  - (c)  $(3, -3)$
  - (d)  $(-3, -3)$
7. The line  $3x + y - 9 = 0$  divides the line joining the points  $(1, 3)$  and  $(2, 7)$  internally in the ratio
  - (a)  $3 : 4$
  - (b)  $3 : 2$
  - (c)  $2 : 3$
  - (d)  $4 : 3$

*Space For Rough Work*

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8. If the points  $P(1, 2)$ ,  $B(0, 0)$  and  $C(a, b)$  are collinear, then
- (a)  $2a = b$
  - (b)  $a = -b$
  - (c)  $a = 2b$
  - (d)  $a = b$
9. If a pair of linear equations is consistent, then the lines will be
- (a) always coincident
  - (b) parallel
  - (c) always intersecting
  - (d) intersecting or coincident
10. One equation of a pair of dependent linear equations is  $2x + 5y = 3$ . The second equation will be
- (a)  $2x + 5y = 6$
  - (b)  $3x + 5y = 3$
  - (c)  $-10x - 25y + 15 = 0$
  - (d)  $10x + 25y = 15$
11. The value of  $k$ , for which equations  $3x + 5y = 0$  and  $kx + 10y = 0$  has a non-zero solution is
- (a) 6
  - (b) 0
  - (c) 2
  - (d) 5
12. The value of  $k$ , for which the system of equations  $x + (k + 1)y = 5$  and  $(k + 1)x + 9y = 8k - 1$  has infinitely many solutions is
- (a) 2
  - (b) 3
  - (c) 4
  - (d) 5
13. The value of  $k$  for which the equations  $(3k + 1)x + 3y = 2$ ;  $(k^2 + 1)x + (k - 2)y = 5$  has no solution, then  $k$  is equal to
- (a) 2
  - (b) 3
  - (c) 1
  - (d) -1
14. In  $\triangle ABC$ ,  $\angle C = \angle A$  and  $BC = 4$  cm and  $AC = 5$  cm, then find length of  $AB$ .
- (a) 5 cm
  - (b) 3 cm
  - (c) 4 cm
  - (d) 2.5 cm
15.  $D$  is a point on the side  $BC$  of a  $\triangle ABC$  such that  $AD$  bisects  $\angle BAC$ . Then
- (a)  $BD = CD$
  - (b)  $BA > BD$
  - (c)  $BD > BA$
  - (d)  $CD > CA$

# Science

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16. The gravitational force between two objects of mass 1 kg each, separated by a distance of 1m in vacuum will be
- (A) zero
  - (B)  $6.675 \times 10^{-11}$  N
  - (C)  $13.350 \times 10^{-11}$  N
  - (D)  $3.337 \times 10^{-11}$  N
17. The centripetal force is provided to the planet by the
- (A) Force of repulsion between the planet and the Sun
  - (B) Force of attraction of the Sun
  - (C) Heat energy of the Sun
  - (D) Gravity of the planet
18. Camping equipment weighing 6000N is pulled across a frozen lake by means of a horizontal rope. The coefficient of kinetic friction is 0.05. The work done by the campers in pulling the equipment 1000 m at constant velocity is
- (A)  $3.1 \times 10^4$  J
  - (B)  $1.5 \times 10^5$  J
  - (C)  $3.0 \times 10^5$  J
  - (D)  $2.9 \times 10^6$  J
19. If a body is thrown up with an initial velocity  $u$  and covers a maximum height of  $h$ , then  $h$  is equal to:
- (A)  $\frac{u^2}{2g}$
  - (B)  $\frac{u^2}{g}$
  - (C)  $\frac{2u^2}{g}$
  - (D) None of these
20. A bullet of mass 10 g travelling horizontally with a velocity of 160 m/s strikes a stationary wooden block and comes to rest in 0.02 s. The distance of penetration of the bullet into the block will be :
- (A) 1.20 m
  - (B) 1.60 m
  - (C) 2.00 m
  - (D) 2.40 m

*Space For Rough Work*

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21. A few substances are arranged in the increasing order of 'forces of attraction' between their particles. Which one of the following represents a correct arrangement?
- (a) Water, air, wind
  - (b) Air, sugar, oil
  - (c) Oxygen, water, sugar
  - (d) Salt, juice, air
22. Which condition out of the following will increase the evaporation of water?
- (a) Increase in temperature of water
  - (b) Decrease in temperature of water
  - (c) Less exposed surface area of water
  - (d) Adding common salt to water
23. Seema visited a Natural Gas Compressing unit and found that the gas can be liquefied under specific conditions of temperature and pressure. While sharing her experience with friends she got confused. Help her to identify the correct set of conditions.
- (a) Low temperature, low pressure
  - (b) High temperature, low pressure
  - (c) Low temperature, high pressure
  - (d) High temperature, high pressure
24. Which of the following conditions is most favourable for converting a gas into a liquid?
- (a) High pressure, low temperature
  - (b) Low pressure, low temperature
  - (c) Low pressure, high temperature
  - (d) High pressure, high temperature
25. Choose the correct statement from the following:
- (a) Conversion of solid into vapour without passing through the liquid state is called vaporization.
  - (b) Conversion of vapour into solid without passing through the liquid state is called sublimation.
  - (c) Conversion of vapour into solid without passing through the liquid state is called freezing.
  - (d) Conversion of solid into liquid is called sublimation.
26. A cell will swell up if
- (a) the concentration of water molecules in the cell is higher than the concentration of water molecules in the surrounding medium.
  - (b) the concentration of water molecules in the surrounding medium is higher than water molecules concentration in the cell.
  - (c) the concentration of water molecules is same in the cell and in the surrounding medium.
  - (d) concentration of water molecules does not matter.

*Space For Rough Work*

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27. 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)
28. Find out the false sentence.
- (a) Nucleus is involved with the formation of lysosomes.
  - (b) Nucleus, mitochondria and plastid have DNA, hence they are able to make their own structural proteins.
  - (c) Mitochondria is said to be the power house of the cell as ATP is generated in them.
  - (d) Cytoplasm is called as protoplasm
29. Which muscles act involuntarily?
- (i) Striated muscles
  - (ii) Smooth muscles
  - (iii) Cardiac muscles
  - (iv) Skeletal muscles
- (a) (i) and (ii)  
(b) (ii) and (iii)  
(c) (iii) and (iv)  
(d) (i) and (iv)
30. Select the incorrect sentence.
- (a) Blood has a matrix containing proteins, salts and hormones
  - (b) Two bones are connected by ligament
  - (c) Tendons are non-fibrous tissue and fragile
  - (d) Cartilage is a form of connective tissue

*Space For Rough Work*

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