CMMC-2020

STD IX – MATHS, SCIENCE AND SOCIAL SCIENCE | CBSE

Multiple Choice Questions | Number of questions: 120 | Max Marks: 120 | Time: 120 Minutes

MATHEMATICS (40 x 1 = 40 marks)

1) Find the rationalizing factor for the denominator of the expression $\frac{1}{3+\sqrt{5}}$

A) $3-\sqrt{5}$ B) $3+\sqrt{5}$ C) $3\pm\sqrt{5}$ D) $\sqrt{5}+\sqrt{3}$

2) Find the value of $8\sqrt{15}\div 2\sqrt{3}$

A) $4\sqrt{5}$ B) $5\sqrt{a}$ C) $6\sqrt{2}$ D) $7\sqrt{2}$

3) Find the sum of $2\sqrt{5}$ and $3\sqrt{7}$

A) $6\sqrt{39}$ B) $35\sqrt{6}$ C) $2\sqrt{5}+3\sqrt{7}$ D) $7\sqrt{3}+5\sqrt{2}$

4) Evaluate: $(25)^{\frac{1}{3}}\times(5)^{\frac{1}{3}}$

A) 7 B) 1 C) 5 D) 25

5) Find the value of $\frac{(16)^{\frac{3}{4}}}{(16)^{\frac{1}{4}}}$

A) 4 B) 8 C) 2 D) 12

6) Write the simplified value of $(49)^{-\frac{1}{4}}\div(49)^{\frac{1}{4}}$

A) $\frac{2}{9}$ B) $\frac{1}{7}$ C) $\frac{3}{8}$ D) $\frac{4}{9}$

7) Simplify: $\sqrt[12]{(x^4)^{\frac{1}{3}}}$.

A) $\frac{2}{x^7}$ B) $\frac{1}{x^6}$ C) $\frac{3}{x^7}$ D) $\frac{1}{x^9}$

8) Simplify: $\sqrt{625}-8\sqrt[3]{125}+\sqrt[4]{81}+15\sqrt[5]{32}$

A) 18 B) 9 C) 21 D) 45

9) Write the coefficient of x^2 *in the expansion of* $(x-2)^3$

A) -6 B) 5 C) 6 D) -5

10) Find the value of $f(x)=2x^2+7x+3$ *at* $x=-2$

A) 3 B) -3 C) 2 D) 1

11) Write the coefficient of y in the expansion of $(5-y)^2$

A) -9 B) -10 C) 10 D) 11

12) Find the value of polynomial $12x^2-7x+1$, when $x=\frac{1}{4}$

A) 0 B) 1 C) -1 D) 2

13) Find the value of 513^2-512^2

A) 2501 B) 0125 C) 2510 D) 1025

14) Find the zero of the polynomial $p(x) = 2x + 3$

A) $\frac{3}{2}$ B) $-\frac{3}{2}$ C) -2 D) 2

15) If $x + 1$ is a factor of the polynomial $3x^2 - kx$, then find the value of k.

A) 3 B) -3 C) 2 D) -1

16) If $f(z) = z^2 - 3\sqrt{2}\,z - 1$, then find $f(3\sqrt{2})$.

A) 1 B) -1 C) 2 D) -2

17) If $x^{11} + 101$ is divided by $x + 1$ what is the remainder?

A) 100 B) 200 C) 50 D) 49

18) If $x + y = 9$ and $xy = 20$, then find the value of $x^2 + y^2$

A) 41 B) 14 C) 40 D) 51

19) If $x + 2k$ is a factor of $f(x) = x^5 - 4k^2x^3 + 2x + 2k + 3$,find k

A) $\frac{3}{2}$ B)$-\frac{3}{2}$ C) $\frac{2}{9}$ D) $\frac{1}{3}$

20) How many solutions does the equation $2x + 5y = 8$ has?

A) Indefinite B) 0 C) 2 D) 4

21) If $p = 100r - t$, find the value of p when $r = 0.25$ and $t = 10$

A) 20 B) 17 C) 15 D) 19

22) Write the equation representing y- axis

A) $x = 0$ B) $y = 0$ C) $x = 1$ D) $y = 1$

23) What is distance between the graphs of the equations y=-1 and y=3?

A) 4 units B) 2 units C) 3 units D) 5 units

24) Write the equation of a line parallel to y-axis and passing through the point (-4,-5)

A) $x = -9$ B) $x = 2$ C) $x = 4$ D) $x = -3$

25) Write the equation of a line parallel to x-axis and passing through the point (-3,-4)

A) y= 9 B) y= -9 C) $y = 6$ D) $y = 3$

26) For what value of p the point $(p, 2)$ lies on the line $3x + y = 11$?

A) $p = 3$ B) $p = 4$ C) $p = -3$ D) $p = -4$

27) Find the value of k if the line on $2x + y = k$ passes through the point (3,5).

A) $k = 12$ B) $k = 13$ C) $k = 9$ D) $k = 11$

28) If $x = 0\ and\ y = k$ is a solution of the equation $5x - 3y = 0$, find the value of k

A) $k = 1$ B) $k = 3$ C) $k = 0$ D) $k = 2$

29) Find one solution of $x = y$

A) (1,1) B) (2,2) C) (1,2) D) (2,1)

30) Find the decimal expansion of $\frac{58}{1000}$

A) 58 B) 0.58 C) 5.8 D) 0.058

31) Write the sum of $0.\overline{3}$ and $0.\overline{4}$

A) $\frac{2}{3}$ B) $\frac{7}{3}$ C) $\frac{3}{2}$ D) $\frac{7}{9}$

32) What is $x + \frac{1}{x}$

A) Cubic polynomial B) Quadratic polynomial

C) Polynomial D) Not a polynomial

33) If -4 is a zero of the polynomial $p(x) = x^2 + 11x + k$, then calculate the value of k.

A) $k = 28$ B) $k = 10$ C) $k = 2$ D) $k = 5$

34) If $x = 1, y = -1$ is a solution of equation $-2y = 10$, the value of p is ……..

A) $p = 8$ B) $p = 1$ C) $p = 5$ D) $p = 0$

35) Express in variables the things which are double of the same thing

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

36) The angles of a quadrilateral are in the ratio 2:3:6:7. The largest angle of the quadrilateral is ……..

A) 50° B) 120° C) 140° D) 90°

37) Two consecutive angles of a parallelogram are in the ratio 1:3, then what will be the smaller angles?

A) 20° B) 30° C) 180° D) 45°

38) Find the volume of right circular cone with radius 6 cm and height 7cm

A) 264 cm^3 B) 321 cm^3 C) 150 cm^3 D) 420 cm^3

39) Two cylinders have bases of same size. The diameter of each is 7 cm. If one of the cylinder is 10 cm high and the other is 20 cm high, then the ratio of their volume is ……..

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

40) Find the mean of first six odd numbers.

A) 6 B) 5 C) 4 D) 1

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SCIENCE (40 x 1 = 40 marks)

1. A body is thrown vertically upward with velocity u, the greatest height h to which it will rise is,
   (A) u/g
   (B) $u^2/2g$
   (C) u^2/g
   (D) $u/2g$

2. If the displacement of an object is proportional to square of time, then the object moves with
   (A) Uniform velocity
   (B) Uniform acceleration
   (C) Increasing acceleration
   (D) Decreasing acceleration

3. Suppose a boy is enjoying a ride on a merry-go-round which is moving with a constant speed of 10 ms^{-1}. It implies that boy is
   (A) At rest
   (B) Moving with no acceleration
   (C) In accelerated motion
   (D) Moving with uniform velocity

4. Area under a (v-t) graph represents a physical quantity which has the unit.
   (A) m^2
   (B) m
   (C) m^3
   (D) $m\ s^{-1}$

5. In which of the following cases of motions, the distance moved and the magnitude of displacement are equal ?
   (A) If the car is moving on straight road
   (B) If the car is moving on circular path
   (C) The pendulum is moving to and fro
   (D) The earth is revolving around the Sun

6. Which of the following statement is not correct for an object moving along a straight path in an accelerated motion?
   (A) Its speed keeps changing
   (B) Its velocity always changes
   (C) It always goes away from the earth
   (D) A force is always acting on it
7. The inertia of an object tends to cause the object
   (A) To increase its speed
   (B) To decrease its speed
   (C) To resist any change in its state of rest or motion
   (D) To decelerate due to friction

8. A passenger in a moving train tosses a coin which falls behind him. It means that motion of the train is
   (A) Accelerated
   (B) Uniform
   (C) Retarded
   (D) Along circular tracks

9. An object of mass 2 kg is sliding with a constant velocity of 4 ms^{-1} on a frictionless horizontal table. The force required to keep the object moving with the same velocity is
   (A) 32 N
   (B) 0 N
   (C) 2N
   (D) 8 N

10. A water tanker filled up to 2/3 of its height is moving with a uniform speed. On sudden application of the brake, the water in the tank would
    (A) Move backward
    (B) Move forward
    (C) Be unaffected
    (D) Rise upwards

11. The gravitation force between the two objects is F. If masses of both object are halved without changing distance between them, then the gravitational force would become
    (A) F/4
    (B) F/2
    (C) F
    (D) 2 F

12. Law of gravitation gives the gravitational force between
    (A) The earth and a point mass only
    (B) The earth and sun only
    (C) Any two bodies having some mass
    (D) Two charged bodies only

13. The atmosphere is held to the earth by
    (A) Gravity
    (B) Wind
    (C) Clouds
    (D) Earth's magnetic field

14. The force of attraction between two unit point masses separated by a unit distance is called
    (A) Gravitational potential
    (B) Acceleration due to gravity

(C) Gravitational field
(D) Universal gravitational constant

15. An apple falls from a tree because of gravitational between the earth and apple. If F_1 is the magnitude of force exerted by the earth on the apple and F_2 is the magnitude of force exerted by apple on earth, then
(A) F_1 is very much greater than F_2.
(B) F_2 is very much greater than F_1.
(C) F_1 is only a little greater than F_2
(D) F_1 and F_2 are equal.

16. An object is put in turn in three liquids having different densities. The object floats with 1/9, 2/11 and 3/7 parts of its volume outside the liquid surface in liquids of densities d_1, d_2 and d_3 respectively. Which of the following statements is correct?
(A) $d_1 > d_2 > d_3$
(B) $d_1 > d_2 < d_3$
(C) $d_1 < d_2 > d_3$
(D) $d_1 < d_2 < d_3$

17. An object weighs 10 N in air. When immersed fully in liquid, it weighs only 8 N. The weight of the liquid displaced by the object will be :
(A) 2 N
(B) 8 N
(C) 10 N
(D) 12 N

18. A brick stands on a box having 60 cm length, 40 cm breadth and 20 cm width. Pressure exerted by the brick will be :
(A) Maximum when length and breadth form the base
(B) Maximum when breadth and width form the base
(C) Maximum when width and length form the base
(D) The same in all the above three cases

19. When a body falls freely towards the earth, then its total energy :
(A) Increases
(B) Decreases
(C) Remains constant
(D) First increases and then decreases

20. In case of negative work, the angle between the force and displacement if :
(A) 0^0
(B) 45^0
(C) 90^0
(D) 180^0

21. A girl is carrying a school bag of 3 kg mass on her back and moves 200 m on a levelled road. The work done against the gravitational force will be:
    (A) 6×10^3J
    (B) 6 J
    (C) 0.6 J
    (D) Zero

22. Which one of the following is not the unit of energy?
    (A) Joule
    (B) Newton metre
    (C) Kilowatt
    (D) Kilowatt hour

23. Water stored in a dam possesses :
    (A) No energy
    (B) Electrical energy
    (C) Kinetic energy
    (D) Potential energy

24. Note is a sound:
    (A) Of mixture of several frequencies
    (B) Of mixture of two frequencies only
    (C) Of a single frequency
    (D) Always unpleasant to listen

25. A key of a mechanical piano is struck gently and then struck again but much harder this time. In the second case:
    (A) Sound will be louder but pitch will not be different
    (B) Sound will be louder and pitch will also be higher
    (C) Sound will be louder but pitch will be lower
    (D) Both loudness and pith will remain unaffected

26. In SONAR, we use:
    (A) Ultrasonic waves
    (B) Infrasonic waves
    (C) Radio waves
    (D) Audible sound waves

27. Sound travels in air if :
    (A) Particles of medium travel from one place to another
    (B) There is no moisture in the atmosphere
    (C) Disturbance moves
    (D) Both particles as well as disturbance travel from one place to another.

28. When we change feeble sound to loud sound we increase its :
    (A) Frequency
    (B) Amplitude

(C) Velocity
(D) Wavelength

29. Earthquake produces which kind of sound before the main shock wave begins :
(A) Ultrasound
(B) Infrasound
(C) Audible sound
(D) None of the above

30. Infrasound can be heard by :
(A) Dog
(B) Bat
(C) Rhinoceros
(D) Human beings

31. 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.

32. During summer, water kept in an earthen pot becomes cool because of the phenomenon of
(A) Diffusion
(B) Transpiration
(C) Osmosis
(D) Evaporation

33. On converting 25^{0c}, 38^{0c} and 66^{0}c to Kelvin scale, the correct sequence of temperature will be
(A) 298 K, 311 K and 339 K
(B) 298 K, 300 K and 338 K
(C) 273 K, 278 K and 543 K
(D) 298 K, 310 k and 338 K

34. The boiling points of diethyl ether, acetone and n-butyl alcohol are 35^{0}C, 56^{0}C and 118^{0}C respectively, which one of the following correctly represents their boiling points in kelvin scale?
(A) 306 K, 329 K, 391 K
(B) 308 K, 329 K, 392 K
(C) 308 K, 329 K, 391 K
(D) 329 K, 392 K, 308 K

35. In which of the following conditions, the distance between the molecules of hydrogen gas would increase?
    1. Increasing pressure on hydrogen contained in a closed container.
    2. Some hydrogen gas leaking out of the container.
    3. Increasing the volume of the container of hydrogen gas.
    4. Adding more hydrogen gas to the container without increasing the volume of the container.

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

36. Rusting of an article made up of iron is called.
    (A) Corrosion and it is a physical as well as chemical change.
    (B) Dissolution and it is a physical change.
    (C) Corrosion and it is a chemical change.
    (D) Dissolution and it is a chemical change.

37. Tincture of iodine has antiseptic properties. This solution is made by dissolving.
    (A) Iodine in potassium iodide.
    (B) Iodine in Vaseline.
    (C) Iodine in water
    (D) Iodine in alcohol

38. Which of the following are homogeneous in nature?
    1. Ice 2. Wood 3. Soil 4. Air

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

39. Which of the following are chemical changes? 1. Decaying of wood, 2. Burning of wood, 3. Sawing of wood, 4. Hammering of a nail into a piece of wood.
    (A) 1 and 2
    (B) 2 and 3
    (C) 3 and 4
    (D) 1 and 4

40. Two chemical species X and Y combine together to form a product P which contains both X and Y. Reaction: X+Y -> P. X and Y cannot be broken down into simpler substances by simple chemical reactions. Which of the following concerning the species X, Y and P are correct?
    1. P is a compound 2. X and Y are compounds
    2. 3. X and Y are elements 4. P has a fixed composition

    (A) 1, 2 and 3 (B) 1, 2 and 4 (C) 2, 3 and 4 (D) 1, 3

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Multiple Choice Questions | Number of questions: 120 | Max Marks: 120 | Time: 120 Minutes

SOCIAL SCIENCE (40 X 1 = 40 MARKS)

1. Who was the king of France at the time of French Revolution?
   A. Napoleon Bonaparte B. Louis XVI
   C. Louis XV D. Nicholas I

2. What are the national colours of France?
   A. White-red-purple B. Blue-red-black
   C. Blue-white-red D. Red-yellow-green

3. What was the Marseillaise?
   A. A slogan B. A type of hat
   C. A patriotic song D. A romantic song

4. Which among the following was not introduced by Napoleon Bonaparte?
   A. A uniform system of weight and measures
   B. A low for the protection of private property
   C. Decimal system
   D. Slavery

5. Which statement gives a clear picture of socialists?
   A. They were in favour of accumulation of wealth.
   B. They wanted to encourage capitalist entrepreneurship.
   C. They wanted to give employment only to the talented.
   D. They were against private property.

6. Who were *jadidists* within the Russian empire?
   A. Muslim reformers B. Muslim workers
   C. Buddhist reformers D. Buddhist cultivators

7. When did the First World War break out?
   A. 1941 B. 1911 C. 1914 D. 1918

8. Which countries were together called the Central powers?
   A. France, Britain and Russia B. Germany, France and Britain
   C. Germany, Austria and Turkey D. Britain, Russia and Turkey

9. Germany fought the First World War against
   A. England B. France C. Russia D. All of these

10. When did the Second World War end?
    A. 11th Jun 1945 B. 9th May 1945 C. 9th May 1944 D. 9th June 1945

11. Which party came to be known as the Nazi party?
    A. German Worker's Party
    B. National Socialist German Worker's Party
    C. Socialist German Worker's Party
    D. National German Worker's Party

12. The concentration camps were
    A. Safe places for the Jews
    B. Unsafe places for the Germans
    C. Places enclosed with live wires
    D. Places where jews were jailed.

13. When was the Indian Forest Act passed?
    A. In 1869 B. In 1855 C. In 1865 D. In 1860

14. Which new trade was created due to the introduction of new forest laws?
    A. Cultivation
    B. Collecting latex from wild rubber trees
    C. Hunting
    D. None of the above

15. People living in forests earn money from the sale of .....
    A. Mahua flowers B. Tendu leaves C. Timber D. Fruits

16. Which forest communities are found in central India?
    A. Karachas B. Koravas C. Banjaras D. Baigas

17. When was the Criminal Tribes Act passed?
    A. In 1889 B. In 1871 C. In 1878 D. In 1870

18. What percentage of the grazing lands did Maasai lose when European imperial powers divided Africa into different colonies?
    A. 50% B. 49% C. 80% D. 60%

19. The Maasai cattle herders live primarily in .....
    A. East Africa
    B. West Africa
    C. South Africa
    D. North Africa

20. The Maasai Mara is a National Park in .....
    A. Tanzania B. Kenya C. Sudan D. South Africa

21. Which of the following is the appropriate reason that excited Swing rioters to destroy threshing machines during 1930s in England?
    A. They broke these machines in the name of Captain Swing.
    B. These machines deprived workmen of their livelihood.
    C. Captain Swing was a person who broke all these machines.
    D. They were threatening landlords.

22. When did the White Americans move into the Mississippi valley?

A. Between 1750 and 1850 B. Between 1830 and 1832
C. Between 1820 and 1850 D. Between 1771 and 1850

23. By 1773, the British government in Bengal had established a monopoly to trade in .....
A. indigo B. opium C. tea D. cotton

24. Why were the Manchus not willing to allow entry of foreign goods in China?
A. They did not need foreign goods.
B. They had no money to buy foreign goods.
C. They feared that the merchants would meddle in local polity and disrupt their authority.
D. None of the above.

25. When did Cyrus McCormick invent the first mechanical reaper?
A. In 1811 B. In 1831 C. In 1801 D. In 1809

26. Opium was known primarily for its .....
A. medicinal properties B. deadly effect on its users
C. refreshing effect on its users D. excellent taste

27. Which parallel of latitude divides India into a almost two equal parts?
A. Tropic of Cancer B. Tropic of Capricorn
C. Equator D. None of these

28. What is the percentage of India's total area in relation to the total geographical area of the world?
A. 2.4 B. 2.6 C. 3.4 D. 3.9

29. Where are Maldives Islands situated?
A. To the south of the Lakshadweep Islands
B. To the north of the Lakshadweep Islands
C. To the north of the Andaman and Nicobar Islands
D. To the south of the Andaman and Nicobar Islands

30. With which country/ countries does India share its land boundaries in the east?
A. Nepal and Bhutan B. Nepal and China
C. Pakistan D. Myanmar and Bangladesh

31. What is the northernmost range known as?
A. The Himachal B. The Himadri
C. The Shiwalik D. None of these

32. Which is the largest salt water lake in India?
A. Chilika B. Sambhar C. Bhimtal D. Wular

33. Where is the Great Barrier Reef found?

A. Australia B. India C. Bangladesh D. Nepal

34. The black soil area of the peninsular plateau is known as
A. Deccan Trap B. Deccan Plateau
C. Chhotanagpur Plateau D. None of these

35. Which tributary of Indus originates from Himachal Pradesh?
A. Satluj B. Beas
C. Ravi D. Chenab

36. Which river flows through Ladakh, Gilgit and Pakistan?
A. Kaveri B. Narmada C. Indus D. Bhramaputra

37. The headwaters of the Ganga is called the
A. Bhagirathi B. Alaknanda
C. Gangotri Glacier D. None of these

38. The Sundarban delta is the home of which animal?
A. Royal Bengal Tiger B. One horned rhinoceros
C. Tibetan wild ass D. Asiatic lion

39. The river Brahmaputra is known as Jamuna in
A. Tibet B. Bangladesh C. Nepal D. Bhutan

40. Where is equable type of climate found?
A. Close to the sea B. Far from the sea
C. Interiors of continents / countries D. None of the above