

# CMMC-2020

## STD IX – MATHS, SCIENCE AND SOCIAL SCIENCE

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

### MATHEMATICS (40 x 1 = 40 marks)

- If  $A \cup B = A \cap B$  then  
A.  $A \neq B$                       B.  $A = B$                       C.  $A \subset B$                       D.  $B \subset A$
- For any three sets P, Q, R then  $P - (Q \cap R)$  is  
A.  $P - (Q \cup R)$                       B.  $(P \cap Q) - R$                       C.  $(P - Q) \cup (P - R)$                       D.  $(P - Q) \cap (P - R)$
- If  $n(A \cup B \cup C) = 73$ ,  $n(A) = 2x$ ,  $n(B) = 3x$ ,  $n(C) = 5x$ ,  $n(A \cap B) = 10$ ,  $n(B \cap C) = 15$ ,  $n(A \cap C) = 5$  &  $n(A \cap B \cap C) = 3$  then the value of x is  
A. 9                      B. 10                      C. 5                      D. 18
- An irrational no. between 2 and 2.5 is  
A.  $\sqrt{11}$                       B.  $\sqrt{5}$                       C.  $\sqrt{2.5}$                       D.  $\sqrt{8}$
- $0.\overline{34} + 0.\overline{34} = \dots\dots\dots$   
A.  $0.\overline{687}$                       B.  $0.\overline{68}$                       C.  $0.\overline{68}$                       D.  $0.68\overline{7}$
- If  $\sqrt{9^x} = \sqrt[3]{9^2}$  then x = .....  
A.  $\frac{2}{3}$                       B.  $\frac{4}{3}$                       C.  $\frac{1}{3}$                       D.  $\frac{5}{3}$
- $\sqrt{363} = x\sqrt{3}$  then x = .....  
A. 8                      B. 9                      C. 10                      D. 11
- If  $x^{51} + 51$  is divided by  $x + 1$ , then the remainder is  
A. 0                      B. 1                      C. 49                      D. 50
- $(a + b + c)^2$  is equal to  
A.  $(a - b + c)^2$                       B.  $(-a - b + c)^2$                       C.  $(a + b + c)^2$                       D.  $(a - b - c)^2$
- If  $\frac{a_1}{a_2} \neq \frac{b_1}{b_2}$  where  $a_1x + b_1y + c_1 = 0$  and  $a_2x + b_2y + c_2 = 0$  then the given pair of linear equations has ..... solution(s).  
A. no solution                      B. two solutions                      C. unique                      D. infinite
- The solution set of  $x - ay = 4$  and  $x + y = 0$  is (1, -1) then the value of a is .....  
A. -1                      B. 1                      C. -3                      D. 3
- The interior angle made by the side in a parallelogram is  $90^\circ$  then the parallelogram is a .....  
A. rhombus                      B. rectangle                      C. trapezium                      D. kite
- The angles of a triangle are  $3x - 40$ ,  $x + 20$ ,  $2x - 10$  the value of x is .....

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- A.  $40^\circ$                       B.  $35^\circ$                       C.  $50^\circ$                       D.  $45^\circ$
14. In a cyclic quadrilateral ABCD,  $\angle A = 4x$ ,  $\angle C = 2x$ , then the value of x is  
A.  $30^\circ$                       B.  $20^\circ$                       C.  $15^\circ$                       D.  $25^\circ$
15. A chord is at a distance of 15 cm from the centre of a circle of radius 25 cm. The length of the chord is .....
- A. 25 cm                      B. 20 cm                      C. 40 cm                      D. 18 cm
16. PQ and RS are two equal chords of a circle with the centre O such that  $\angle POQ = 70^\circ$  then  $\angle OPS = ?$   
A.  $60^\circ$                       B.  $70^\circ$                       C.  $55^\circ$                       D.  $80^\circ$
17. The angle sum of a convex polygon with number of sides 7 is  
A.  $900^\circ$                       B.  $1080^\circ$                       C.  $1444^\circ$                       D.  $720^\circ$
18. The point of concurrency of the medians of a triangle is .....
- A. circumcentre              B. in centre                      C. orthocentre                      D. centroid
- 19) The point (0,3) lies on ----  
A) +ve x axis                      B) +ve y axis                      C) -ve x axis                      D) -ve y axis
- 20) The centroid of a triangle is at (1, 3) and two of its vertices are (-7,6) and (8,5) then the third vertex is .....
- A) (-2, 2)                      B) (2,-2)                      C) (-2,-2)                      D) (2, 2)
- 21) The point whose abscissa is 5 and lies on the z-axis is .....
- A) (-5,0)                      B) (5,5)                      C) (0,5)                      D) (5,0)
- 22) The point p which divides the line segment joining A(1,-3) and (-3,9) internally in the ratio 1:3 is .....
- 23) If  $\tan\theta = \cot 37^\circ$  then the value of  $\theta$  is  
A) 37                      B) 53                      C) 90                      D) 1
- 24) If  $2\sin 2\theta = \sqrt{3}$  then the value of  $\theta$  is  
A)  $90^\circ$                       B)  $30^\circ$                       C)  $45^\circ$                       D)  $60^\circ$
- 25) The value of  $\tan 1^\circ \tan 2^\circ \tan 3^\circ \dots \tan 89^\circ =$   
A) 0                      B) 1                      C) 2                      D)  $\frac{\sqrt{3}}{2}$
- 26) Given that  $\sin\alpha = \frac{1}{3}$  and  $\cos\beta = \frac{1}{2}$  then the value of  $\alpha + \beta$  is.....

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- A)  $0^\circ$                       B)  $90^\circ$                       C)  $30^\circ$                       D)  $60^\circ$
- 27)  $\sec 29^\circ - \operatorname{cosec} 61^\circ =$
- A) 1                              B)  $\sec 60^\circ$                       C)  $\operatorname{cosec} 29^\circ$                       D) 0
- 28) The L.S.A . of a cube of side 12 cm is .....
- A)  $144 \text{ cm}^2$                       B)  $196 \text{ cm}^2$                       C)  $576 \text{ cm}^2$                       D)  $664 \text{ cm}^2$
- 29) If the ratio the sides of two cubes are 2:3 then the ratio of their surface areas will be .....
- A) 4:6                              B) 4:9                              C) 6:9                              D) 16:36
- 30) The number of bricks each measuring  $70\text{cm} \times 80\text{cm} \times 40\text{ cm}$  that will be required to build a wall whose dimensions are  $7\text{m} \times 8\text{m} \times 4\text{m}$  is .....
- A) 4000                              B) 3000                              C) 2000                              D) 1000
- 31) The algebra sum of the deviations of asset of n values from their mean is
- A) 0                              B)  $n - 1$                               C)  $n$                               D)  $n + 1$
- 32) The mean of the square of first 11 natural numbers is .....
- A) 26                              B) 46                              C) 48                              D) 52
- 33) The mean of 8 nos. is 15. If each number is multiplied by 2, then the new mean will be .....
- A) 7.5                              B) 30                              C) 10                              D) 25
- 34) The mode of the data 72,33,44,72,81,72,15 is
- A) 72                              B) 33                              C) 81                              D) 15
- 35) The probability of an impossible event is .....
- A)  $\infty$                               B) -1                              C) 1                              D) 0
- 36) Probability based on the concept of relative frequency is called
- A) Empirical probability                              B) Classical probability
- C) Both a and b                              D) Neither A nor B
- 37) The six faces of the dice are called equally likely if the dice is
- A) Small                              B) Fair                              C) Six-faced                              D) Round
- 38) A letter is chosen at random from the word "MATHEMATICS", the probability of getting a vowel is .....

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A.  $\frac{2}{11}$

B.  $\frac{3}{11}$

C.  $\frac{4}{11}$

D.  $\frac{5}{11}$

39) From a well shuffled pack of 52 cards one card is drawn at random. The probability of getting not a king is .....

A.  $\frac{12}{13}$

B.  $\frac{1}{13}$

C.  $\frac{4}{13}$

D.  $\frac{2}{13}$

40) An integer is chosen from the first 20 natural numbers. What is the probability that it is not a prime number is .....

A.  $\frac{1}{5}$

B.  $\frac{2}{5}$

C.  $\frac{3}{4}$

D.  $\frac{3}{5}$

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### SCIENCE (40 x 1 = 40 marks)

1. How many meters are there in 1 nanometer?

A.  $10^{-10}\text{m}$

B.  $10^{-9}\text{m}$

C.  $10^9\text{m}$

D.  $10^{10}\text{m}$

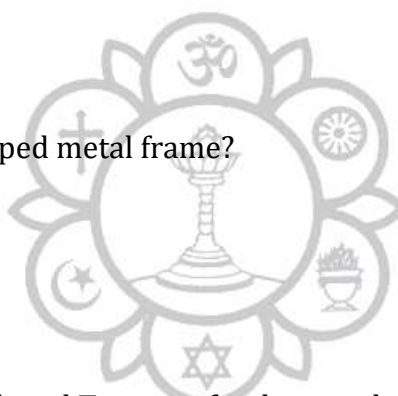
2. .... consists of a 'U' shaped metal frame?

A. Screw Gauge

B. Vernier Caliper

C. Beam Balance

D. Spring Balance



3. Assertion(A): Mass, Length and Time are fundamental physical quantities.

Reason (R): They are independent of each other

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

B. Both A and R are true and R is the correct explanation of R

C. A is true but R is false

D. A is false but R is true

4. A car accelerates at  $1.5\text{m/s}^2$  on a straight road. How is the increase in velocity in 4s?

A. 6 m/s

B. 4 m/s

C. 3 m/s

D. 2.66 m/s

5. When a body moves uniformly along the circle then:

A. Its velocity changes but speed remains the same.

B. Its speed changes but velocity remains the same.

C. Both speed and Velocity changes

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D. Both speed and velocity remain the same.

6. In a 100m race, the winner takes 10s to reach the finishing point. The average speed of the winner is .....

- A. 5m/s
- B. 20m/s
- C. 40 m/s
- D. 10 m/s

7. A solid floats in liquid with a portion of it being submerged. Then :

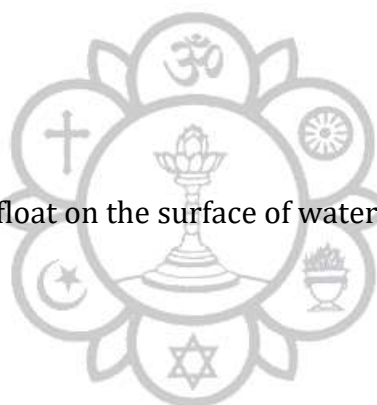
- I. The liquid exerts an up thrust equal to the weight of the solid.
- II. The weight of the dispersed liquid is equal to the weight of solid.
- III. Solid exerts a force equal to its weight on liquid.

Choose correct statements

- A. I and II
- B. I and III
- C. II and III
- D. All of these

8. Petroleum based products float on the surface of water. This is due to their low .....

- I. Volume
- II. Density
- III. Specific Gravity
- IV. Viscosity



Choose correct statements

- A. I and II
- B. I and III
- C. I and IV
- D. II and III

9. What is the maximum resistance one can make with ten  $1 \Omega$  resistors?

- A.  $1 \Omega$
- B.  $2 \Omega$
- C.  $5 \Omega$
- D.  $10 \Omega$

10. In India, the frequency of alternating current is :

- A. 220Hz

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- B. 50Hz
- C. 5Hz
- D. 100Hz

11. Induced current flows through a coil .....

- A. More than the period during which flux changes through it.
- B. Less than the period during which flux changes through it.
- C. Only for the period during which flux changes through it.
- D. None of these.

12. Magnetic field lines determine ....

- A. Shape of the magnetic field.
- B. Only the direction of the magnetic field.
- C. Only the relative strength of the magnetic field.
- D. Both the direction and the relative strength of the magnetic field.

13. An electric generator converts.....

- A. Electrical energy into mechanical energy
- B. Mechanical energy into heat energy
- C. Electrical energy into electrical energy
- D. Mechanical energy into electrical energy

14. In torches, search lights and headlights of vehicles the bulb is placed ..... of the concave mirror.

- A. Between and F of the reflector
- B. Very near to F
- C. Between F & C
- D. At C

15. If magnification is +1.5. The image is .....

- A. Erect
- B. Diminished
- C. Real
- D. Inverted

16. When light is going from a denser to a rarer medium, the critical angle is the angle of incidence for which the angle of refraction is .....

- A.  $48^\circ$
- B.  $90^\circ$
- C.  $42^\circ$
- D.  $51^\circ$

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17. A ray of light travelling in medium 1 strikes and travels into another transparent medium 2. If the speed of light is greater in medium 1, the ray will
- A. Refract towards the normal
  - B. Have an angle of incidence smaller than the angle of refraction.
  - C. Refract away from the normal.
  - D. Undergo total internal refraction.
18. Which of the following is true?
- A.  $1\text{J} = 412\text{ calorie}$
  - B.  $1\text{J} = 0.24\text{ calorie}$
  - C.  $1\text{ calorie} = 4.2\text{J}$
  - D. Both B and C
19. On a cold day, it is hard to open the lid of a tight container. But when you gently heat the neck you can easily open the lid. Why?
- A. On heating glass expands and lid contracts
  - B. On heating lid expands more than the neck and thus slides easily.
  - C. Neck becomes slippery on heating.
  - D. Lid of the bottle cannot bear the heat.
20. The specific heat capacity of water is
- A.  $4200\text{ Jkg}^{-1}\text{K}^{-1}$
  - B.  $420\text{ Jg}^{-1}\text{K}^{-1}$
  - C.  $0.42\text{ Jg}^{-1}\text{K}^{-1}$
  - D.  $4.2\text{ Jkg}^{-1}\text{K}^{-1}$
21. Human beings cannot hear .....
- A. Infrasonic
  - B. Sonic sound
  - C. Ultrasonic
  - D. A & C
22. When temperature increases the speed of sound .....
- A. Increases
  - B. Decreases
  - C. Remains same
  - D. None of these
23. SI unit of wavelength is .....
- A. Hertz

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- B. Meter per second
- C. Decibel
- D. Meter

24. SONAR is a device that uses ..... to measure the distance, direction and speed of underwater objects.

- A. Radio waves
- B. Infrared waves
- C. Water waves
- D. Ultrasonic waves

25. The process that takes place in the sun is .....

- A. Nuclear Fission
- B. Spallation
- C. Nuclear Fusion
- D. None of these

26. The planet having the longest summer and winters is .....

- A. Saturn
- B. Neptune
- C. Uranus
- D. Jupiter



27. The first part of the ISS was launched by .....

- A. Russian Soyuz
- B. Russian Zarya
- C. Russian Orbital
- D. American Sputnik

28. Which among the planets does not have a moon?

- A. Mars
- B. Earth
- C. Uranus
- D. Mercury

29. Muddy water is an example of :

- A. True Solution
- B. Suspension
- C. Colloidal solution
- D. No solution

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30. A homogeneous mixture of two or more substance is :
- A. True solution
  - B. Suspension
  - C. Colloidal Solution
  - D. No solution
31. The physical state of water at 373K is .....
- A. Solid
  - B. Liquid
  - C. Vapour
  - D. Plasma
32. Hydrogen atom does not have .....
- A. Proton
  - B. Neutron
  - C. Electron
  - D. Proton and Electron
33. Co-60 is used in the treatment of .....
- A. Cancer
  - B. Thyroid Disorder
  - C. Leukemia
  - D. Blockage of arteries
34. Proton was discovered by :
- A. J.J. Thomson
  - B. Rutherford
  - C. Goldstein
  - D. Chadwick
35. The isotope used to remove the brain tumor and treatment of cancer is .....
- A. Cobalt-60
  - B. Uranium-235
  - C. Iodine-131
  - D. Sodium-24
36. The maximum numbers of electrons that can be accommodated in s, p, d and f subshells are ....
- A. 14,10,6,2
  - B. 6,10,2,14
  - C. 2,6,10,14



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D. 6,2,14,10

37. If the electronic configuration of an element is  $1s^2 2s^2 2p^6 3s^2 3p^1$  then it will occupy ..... block of the periodic table.

- A. s
- B. p
- C. d
- D. f

38. Alkali and Alkaline Earth metals form ..... compound when they react with non-metals.

- A. Ionic
- B. Covalent
- C. Coordinate covalent
- D. All of the above

39. The formation of brown colour on the freshly cut surface of vegetables and fruits is because ..... of organic compounds present in them.

- A. Oxidation
- B. Reduction
- C. Both a & b
- D. None of these

40. .... and ..... metals do not react with HCL or  $HNO_3$

- A. Gold and Magnesium
- B. Silver and Magnesium
- C. Gold and Silver
- D. Zinc and Silver

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### SOCIAL SCIENCE (40 X 1 = 40 MARKS)

1. The study of human past through the analysis and interpretation of material remains is called .....

  - A. Archaeology
  - B. Paleoanthropology
  - C. Geology
  - D. Biology

2. Eons are long period of time covering ..... of years.

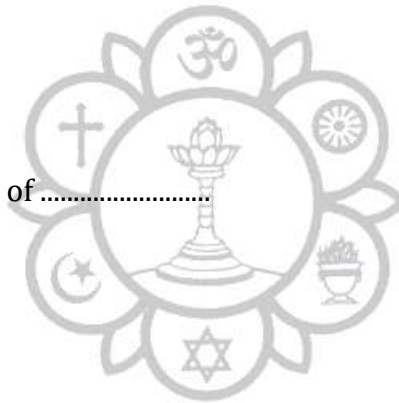
  - A. thousands
  - B. hundreds

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- C. millions  
D. a few decades
3. The hallmark of human civilization is the introduction of .....
- A. Stone weapons  
B. Agriculture  
C. Faster economy  
D. writing system
4. In the post Neolithic period ..... as science developed.
- A. Botany and Zoology  
B. Physics and Chemistry  
C. Mathematics and Astronomy  
D. Philosophy and astronomy
5. Hieroglyphics was a form of .....
- A. Trade  
B. Communication  
C. Writing  
D. Painting
6. Gilgamesh was a king of .....
- A. Babylonia  
B. Assyria  
C. Sumeria  
D. China
7. Zebu were Harappan .....
- A. Temples  
B. Land  
C. Cattle  
D. Crops
8. The earliest written work on Tamil grammar is .....
- A. Agananuru  
B. Purananuru  
C. Tholkappiyam  
D. Natrinai
9. Hermapollan was a .....
- A. City  
B. Book  
C. Ship



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D. Language

10. Aivananel was a type of .....

- A. Cotton
- B. Wheat
- C. Rice
- D. Iron

11. According to Confucius wisdom grows from the .....

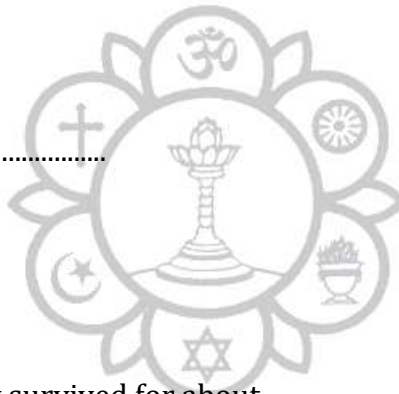
- A. Individual
- B. Society
- C. Family
- D. School

12. Bimbisara was the first important king of .....

- A. Vaishali
- B. Magadha
- C. Kosala
- D. Arya

13. Chanakya wrote .....

- A. Kundalakesi
- B. Shakunthala
- C. Arthashastra
- D. Panchathantra



14. In Athens, democracy survived for about ..... year.

- A. 50
- B. 100
- C. 200
- D. 150

15. A major source of revenue to the Roman state was .....

- A. Agriculture
- B. Exports
- C. Taxes
- D. Slaves trade

16. Odes was contributed by .....

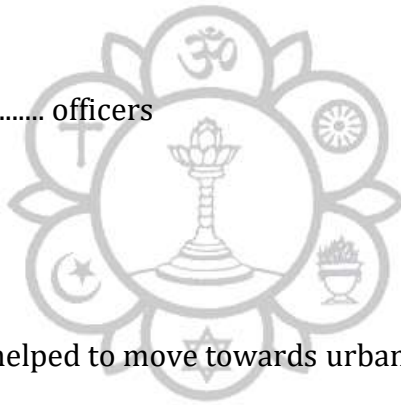
- A. Pliny the Elder
- B. Livy
- C. Horace
- D. Tacitus

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17. Seljuk Turks came from .....
- A. Central America
  - B. Central Asia
  - C. Central Australia
  - D. Central Europe
18. Hideyoshi was a .....
- A. Noble
  - B. Trader
  - C. Peasant
  - D. Warrior
19. In the south, Sultanate was established in .....
- A. Tuticorin
  - B. Nagapattinam
  - C. Madurai
  - D. Palani
20. 'Nayakas' were ..... officers
- A. Administrative
  - B. Special
  - C. Military
  - D. Police
21. Decline of ..... helped to move towards urbanisation.
- A. Trade
  - B. Feudalism
  - C. Freedom
  - D. Population
22. Zwingli worked from .....
- A. Zurich
  - B. Genoa
  - C. Rome
  - D. Spain
23. King Ferdinand and Queen Isabella of Spain supported .....
- A. Amerigo Vespucci
  - B. Henry
  - C. Columbus
  - D. Ptolemy



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24. Which one of the following was not an American colony of the British on the East?
- A. Virginia
  - B. Georgia
  - C. Seattle
  - D. Delaware
25. The book 'Social Contract' was written by .....
- A. Rousseau
  - B. Montesquieu
  - C. Voltaire
  - D. Diderot
26. Marat played a major role in .....
- A. Battle of Bunker Hill
  - B. Reign of Terror
  - C. September Massacres
  - D. Paris Commune
27. Henry Bessemer discovered a faster and cheaper method of producing steel in the year
- A. 1802
  - B. 1767
  - C. 1856
  - D. 1900
28. Zollverein Customs Union allowed free trade among .....
- A. Countries
  - B. Colonies
  - C. Provinces
  - D. People
29. Samuel Slater was a citizen of .....
- A. U.S.A
  - B. England
  - C. Sweden
  - D. Germany
30. Whiteman's burden was to
- A. educate
  - B. civilise
  - C. conquer
  - D. invent

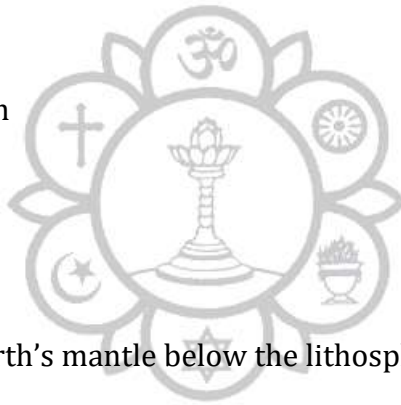


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31. The Capital of the French Government in India-China was
- A. Annam
  - B. Tongking
  - C. Hanoi
  - D. lovos
32. The point of origin of an Earthquake is called the .....
- A. epicentre
  - B. focus
  - C. seismic wave
  - D. magnitude
33. Silica and Aluminium are the components of the
- A. Crust
  - B. Mantle
  - C. Core
  - D. None of the above
34. Seismology deals with
- A. Tsunami
  - B. Earthquakes
  - C. Volcano
  - D. Crust
35. Upper layer of the earth's mantle below the lithosphere is called
- A. Hydrosphere
  - B. Pedosphere
  - C. Asthenosphere
  - D. Atmosphere
36. Shallow fast flowing water in a stream is called a
- A. Waterfall
  - B. Plunge pool
  - C. Rapid
  - D. Gorge
37. Which structure is most similar to an alluvial fan in formation and composition
- A. River
  - B. Watershed
  - C. Delta
  - D. Lake



## CMMC-2020

### STD IX – MATHS, SCIENCE AND SOCIAL SCIENCE

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

38. Atmosphere is divided into two main vertical regions the upper portion is Heterosphere and the lower is
- A. Troposphere
  - B. Mesosphere
  - C. Homosphere
  - D. None of these
39. Temperature ..... from the equator to pole.
- A. increases
  - B. no change
  - C. decreases
  - D. stable
40. Hawaii islands are located on the ..... ocean.
- A. Pacific
  - B. Indian
  - C. Atlantic
  - D. Arctic

