SAMPLE PAPER–1

ACADEMIC SESSION : 2020-21

FOR CLASS X MOVING STUDENT

Time : 1½ Hr.	Negative Marking - 0.25	Maximum Marks : 60

GENERAL INSTRUCTIONS

1. Each question carry 1 marks.

2. Blank papers, clip boards, log tables, slide rule, calculators, mobile or any other electronic gadgets in any form is not allowed.

3. Write your Name and Roll No. in the space provided in the bottom of this booklet.

4. Before answering the paper, fill up the required details in the blank space provided in the answer sheet.

5. Do not forget to mention your roll number neatly and clearly in the blank space provided in the answer sheet.

6. No rough sheets will be provided by the invigilators. All the rough work is to be done in the blank space provided in the question paper.

7. In case of any dispute, the answer filled in the OMR sheet available with the institute shall be final.

8. Post exam Answer Key will be declared. Correction in Answer Key will be accepted till next 36 hours after which no correction will be entairtained.

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1. If the mean of the numbers 7, 3, 8, 4, x, 7, 9, 7 and 12 is 7, then the difference between the median and the mode of the numbers 12, 10, 8, 10, x, 7, 6, 8 and 6 is :
(A) 0   (B) 1
(C) 2   (C) 3

2. The radius of sphere is 3r, then its volume will be :
(A) $\dfrac{16}{3}\pi r^3$ (B) $\dfrac{32}{3}\pi r^3$

(C) $\dfrac{108}{3}\pi r^3$ (D) $36\pi r^3$

3. If $x = \sqrt{2+\sqrt{2}}$, then $x^4 + \dfrac{4}{x^4}$ is :

(A) 8   (B) $6\sqrt{2} - 2$

(C) $6 - \sqrt{2}$ (D) 12

4. The average age of group of eight members is the same as it was 3 years ago, when a young member is substituted for an old member. The incoming member is younger to the outgoing member by :
(A) 11 years   (B) 24 years
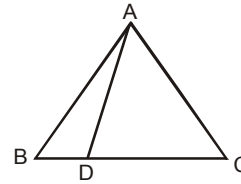(C) 28 years   (D) 16 years

5. One of the factors of the expression $(2a + 5b)^3 + (2a - 5b)^3$ would be –
(A) 4a   (B) 10b
(C) 2a + 5b   (D) 2a – 5b

6. In a $\triangle PQR$, PS is bisector of $\angle P$ meet QR at S and $\angle Q = 70°$, $\angle R = 30°$, then :
(A) QS > PQ > PR   (B) QS < PQ < PR
(C) PQ > QS > SR   (D) PQ < QS < SR

7. In the adjoining figure, the point D divides the side BC of $\triangle ABC$ in the ratio m : n, then the ar ($\triangle ABD$) : ar($\triangle ADC$) are in the ratio :

(A) n : m   (B) m : n
(C) $n^2 : m^2$ (D) $m^2 : n^2$

8. Find the value of $56.08\,\overline{148} \div 14$.

(A) $4\dfrac{407}{5863}$ (B) $4\dfrac{407}{69930}$

(C) $4\dfrac{407}{6993}$ (D) None of these

9. If $\dfrac{\left(a+\dfrac{1}{b}\right)^p \times \left(a-\dfrac{1}{b}\right)^q}{\left(b+\dfrac{1}{a}\right)^p \times \left(b-\dfrac{1}{a}\right)^q} = \left(\dfrac{a}{b}\right)^x$ then what is x ?

(A) p + q   (B) p – q

(C) pq   (D) $\dfrac{p}{q}$

10. D is a real number with non terminating digits a_1 and a_2 after the decimal point. Let $D = 0.a_1a_2a_1a_2\ldots$ with a_1 & a_2 both not zero which of the following when multiplied by D will necessarily give an integer ?
(A) 198   (B) 18
(C) 125   (D) 75

Space For Rough Work

11. If initially the distance between two bodies is r and their masses be M_1 and M_2 then the force of gravitation be F. If this distance is increased to two times then the force would become :

(A) $\dfrac{F}{2}$ (B) $\dfrac{F}{4}$

(C) 2 F   (D) 4 F

12. A cylinder of mass 10 g weighs 7 g in water. If its area of cross-section is 0.75 cm², its length will be :

(A) 4 cm

(B) $\dfrac{40}{3}$ cm

(C) $\dfrac{28}{3}$

(D) known only in terms of its density

13. A distance is always :
(A) shortest length between two points
(B) length of actual path covered by an object between two points
(C) product of length and time
(D) none of the above

14. A piece of iron has dimensions 3cm × 1.5 cm × 6cm. If its mass is 205.2 gms, its density is :
(A) 5.6 gm cm⁻³   (B) 8.4 gm cm⁻³
(C) 7.6 gm cm⁻³   (D) 76 gm cm⁻³

15. A coconut is hanging on a tree at a height of 15 m from the ground. A boy launches a projectile vertically upwards with velocity 20 m/s. At what time the projectile will pass the coconut ?

(g = 10m/s²)

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

16. A transformer is used to light a 120 W, 24 V lamp from 240 V Ac mains. The current in the main cable is 0.6 A. The efficiency of the transformer is :
(A) 48%   (B) 63.8%
(C) 83.3%   (D) 90%

17. The speed of sound in a certain medium is 960 m/s. If 3600 waves pass over a certain point in 1 minute, the wavelength is :
(A) 2 m   (B) 4 m
(C) 8 m   (D) 16 m

18. If a force F is applied on a body and it moves with a velocity V, the power will be :
(A) F × V   (B) F/V
(C) F/V²   (D) F × V²

19. The distance between two stations is 200 km. A train travels for the first 100 km at a speed of 40 kmh¹. How fast should the train travel the next 100 km so as to average speed becomes 50 kmh⁻¹ for the whole journey ?
(A) 200/3 kmh⁻¹   (B) 100 kmh⁻¹
(C) 100/3 kmh⁻¹   (D) 50/3 kmh⁻¹

20. Which of the following graphs best represents the total energy (T) of a freely falling body and its height (h) above the ground ?
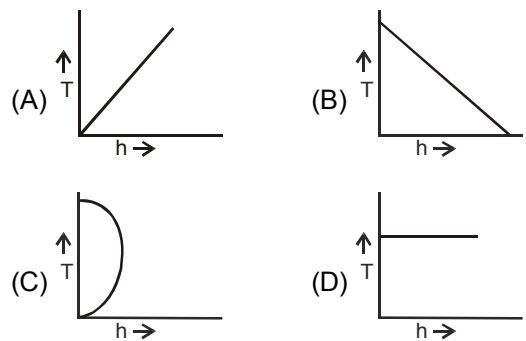
Space For Rough Work

21. Chemical substances, grease, nylon, naphtha and polyester can be obtained from -
(A) Coal
(B) Petroleum
(C) Both of the above
(D) None of the above

22. The increasing order of the value of e/m (charge/ mass) of an electron (e), proton (p), neutron (n) and alpha (α) particle is -
(A) e,p,n,α
(B) n,p,e,α
(C) n,p, α, e
(D) n,α, p, e

23. Electrons revolve in some definite circular orbits around the nucleus without emission of energy. This statement was given by -
(A) Rutherford
(B) Bohr
(C) Thomson
(D) Somerfield

24. Which one of the following is a penta-atomic molecule ?
(A) CO_2
(B) PCl_5
(C) $POCl_3$
(D) C_2H_6

25. The number of molecules in 16.0 g of oxygen is -
(A) 6.02×10^{23}
(B) 6.02×10^{-23}
(C) 3.01×10^{-23}
(D) 3.01×10^{23}

26. Which of the following sets of ions is present in potassium sulphate (K_2SO_4) ?
(A) K^+, SO_4^{2-}
(B) K^{+4}, SO^{2-}
(C) K^{+2}, SO_4^-
(D) K^+, SO_4^-

27. The change of state of substance from gas to liquid is called -
(A) melting
(B) boiling
(C) condensation
(D) vaporization

28. The magnitude of intermolecular forces of attraction is maximum in-
(A) chalk powder
(B) water
(C) carbon dioxide
(D) hydrogen

29. Which of the following provides an example of a true solution ?
(A) Blood
(B) Milk
(C) Starch solution
(D) Sugar solution

30. Which process is used for separation of two miscible liquids on the basis of difference in their boiling points ?
(A) Crystallization
(B) Filtration
(C) Fractional distillation
(D) Sublimation

31. Female sex hormone is
(A) oestrogen
(B) ADH
(C) insulin
(D) adrenalin

32. Both pulmonary and renal arteries.
(A) contain oxygenated blood
(B) have internal valves
(C) deliver CO_2 to the organs they supply
(D) have thick wall and narrow lumen

33. Non membranous cell organelle is :
(A) Mitochondria
(B) Nucleus
(C) Lysosomes
(D) Ribosomes

34. Which one has vascular tissue, produces spores but lack seeds ?
(A) Bryophyta
(B) Pteridophyta
(C) Gymnosperm
(D) Angiosperms

35. Which of the following has incompletely four chambered heart ?
(A) Mammals
(B) Amphibians
(C) Birds
(D) Reptiles

Space For Rough Work

36. Animals giving birth to young ones are :
(A) viviparous   (B) oviparous
(C) ovoviviparous   (D) coelomate

37. Congenital diseases are those which :
(A) are deficiency diseases
(B) are present from time of birth
(C) are spread from man to man
(D) occur during life time

38. Fluid part of blood after removal of corpuscles is:
(A) Plasma   (B) Lymph
(C) Proteins   (D) Vaccine

39. The permanent tissue having localized thickening of pectin is :
(A) Parenchyma   (B) Collenchyma
(C) Sclerenchyma   (D) Xylem

40. Ozone hole refers to :
(A) hole in ozone layer
(B) reduction in thickness of ozone layer in stratosphere
(C) reduction in thickness of ozone layer in troposphere
(D) increase in concentration of ozone

41. Which one of the following taxes in colonial India had the most severe effect on pastoralists?
(A) Grazing tax   (B) Pass or permit tax
(C) Tax per cattle   (D) Land revenue

42. This programme provides for 100 days assured employment every year to every rural household in 200 districts.
(A) NFWP   (B) PMRY
(C) NREGA   (D) All the above

43. Out of four main factors of production one is
(A) raw material.   (B) stock.
(C) labour.   (D) building.

44. Food security depends on the :
(A) Public Distribution system
(B) Government vigilance and action at times when this security in threatened
(C) Public Awareness
(D) Both (A) and (B)

45. The standard meridian of India passes through:
(A) Bhagalpur   (B) Lucknow
(C) Mirzapur   (D) Dehradun

46. Poverty in China has declined due to
(A) massive investments in human resource.
(B) population control.
(C) communist government.
(D) industrialization.

47. Plant community that has grown naturally without human aid and has been left undisturbed by humans for a long time is called
(A) mediterranean vegetation.
(B) tundra vegetation.
(C) virgin vegetation.
(D) taiga vegetation.

48. Which German expert was invited in India by the British for advice and was made the first Inspector General of Forests in India ?
(A) Tuscany   (B) E.P. Stebbing
(C) Dietrich Brandis (D) George Yule

Space For Rough Work

49. Over the late eighteenth and nineteenth centuries in the English countryside at the beginning of each year, at a public meeting each villager was allocated a number of -
(A) Animals to rear
(B) Strips to cultivate
(C) Machines to start his own industries
(D) Slaves

50. The Munich pact has been called the last act of appeasement because :
(A) It was signed in 1938
(B) Hitler attacked Poland on 1st Sept. 1939
(C) Mussolini attacked Greece
(D) Mussolini attacked Ethiopia

Directions : (51 to 52) Find the missing numbers :

51. 2, 5, 7, 12, 15, 17, 22, ?
(A) 25   (B) 26
(C) 27   (D) 28

52.

1	5	9
4	8	12
7	(?)	15

(A) 11   (B) 12
(C) 13   (D) 16

53. If **HEMANT** is coded as **854152**, how would we code **MONIKA** ?
(A) 465911   (B) 464921
(C) 465912   (D) 465921

54 Which letter will be the eighth to the right of the seventh letter from the left end of the English alphabets ?
(A) R   (B) O
(C) K   (D) Q

55. Pointing to a man Usha said "He is the brother of the daughter of the wife of my husband". How is the man related usha ?
(A) Son   (B) Husband
(C) Cousin   (D) Nephew

Direction : (56) Arrange the following group such that when arranged in a specific order, meaningful word is formed.
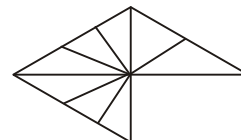
56.
R	T	A	O	U	H
1	2	3	4	5	6

(A) 1, 3, 4, 5, 6, 2   (B) 2, 3, 6, 4, 5, 1
(C) 6, 3, 2, 4, 5, 1   (D) 3, 5, 2, 6, 4, 1

57. '**Match**' is related to '**Win**' in the same way as '**Examination**' is related to ?
(A) Write   (B) Appear
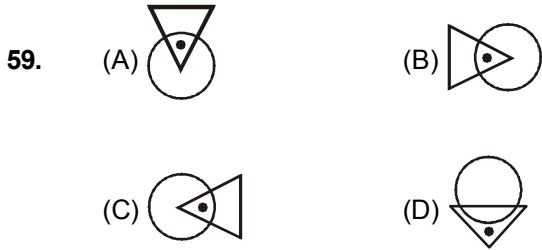(C) Success   (D) Attempt

58. How many triangle does the following figure have?

(A) 14 or more   (B) 12 to 13
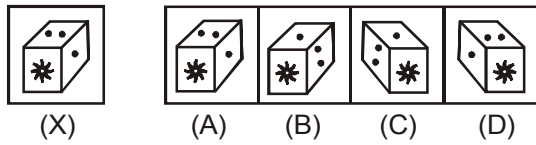(C) 10 to 11   (D) 7 to 9

Space For Rough Work

Direction : (59) In each of the following questions, there are figures of which three are similar in a certain way, and one is different. Find the one that is different from the rest.

59.   (A)   (B)

(C)   (D)

Direction: (60) *In each of the following questions, choose the correct mirror image from alternatives A, B, C, and D of the figure (X).*

60.

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

Space For Rough Work

SAMPLE PAPER–2

ACADEMIC SESSION : 2020-21

FOR CLASS X MOVING STUDENT

Time : 1½ Hr.   **Negative Marking 0.25**   **Maximum Marks : 60**

GENERAL INSTRUCTIONS

1. Each question carry 1 marks.

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1. Unit digit of $6^1 + 6^2 + 6^3 + \ldots + 6^{100}$ is :
(A) 2   (B) 4
(C) 6   (D) 0

2. A man bought a house for Rs. 5 lakhs and rents it. He puts $12\frac{1}{2}$% of each month's rent aside for repairs, pays Rs. 1660 as annual taxes and realises 10% on his investment thereafter. The monthly rent of the house is :
(A) Rs. 2460   (B) Rs. 2500
(C) Rs. 4920   (D) Rs. 5000

3. If the point D divides the side BC of $\triangle$ABC in the ratio m : n, then the ar ($\triangle$ABD) : ar($\triangle$ADC) are in the ratio :
(A) n : m   (B) m : n
(C) $n^2 : m^2$ (D) $m^2 : n^2$

4. The diagonals of a parallelogram ABCD intersect each other at the point O. If $\angle$DAC = 32° and $\angle$AOB = 70°, then $\angle$DBC is :
(A) 24°   (B) 32°
(C) 38°   (D) 86°

5. Which of the following number is irrational ?
(A) $\sqrt{16} - 4$ (B) $(3 - \sqrt{3})(3 + \sqrt{3})$
(C) $\sqrt{5} + 3$ (D) $-\sqrt{25}$

6. The decimal expansion of $\sqrt{2}$ is :
(A) Finite decimal
(B) 1.4121
(C) Non-terminating recurring
(D) Non - terminating non recurring

7. If $25^{x-1} = 5^{2x-1} - 100$, then the value of x is :
(A) 0   (B) 1
(C) 2   (D) None of these

8. O is the centre of the circle as shown in the diagram. The distance between P and Q is 4 cm. Then the measure of $\angle$ROQ is :
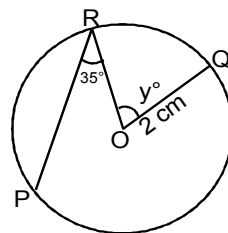
(A) 70°   (B) 35°
(C) 105°   (D) 30°

9. If x = 0.75, then what is the value of the expression $(1 + x + x^2) + \dfrac{x^3}{1 - x}$ is :
(A) 0.25   (B) 4
(C) 1.75   (D) 11

10. Some oil is filled in a right circular cylindrical vessel. The radius of the base of the vessel is 6 cm. Some iron balls, each of diameter 3 cm, are completely dipped into the oil. If level of oil in the vessel rises by 2 cm, the number of iron balls dipped into the oil is :
(A) 8   (B) 32
(C) 16   (D) 4

11. Which of the following mathematical formulations are not correct ?
(A) F = k m a   (B) p = m v
(C) F t = m v – m u   (D) F / t = m (v – u)

12. How long will a ball dropped from a height of 20 m take to reach the surface of the earth ?
(A) 2 sec   (B) 4 sec
(C) 6 sec   (D) 8 sec

Space For Rough Work

13. When an object undergoes acceleration :
(A) its speed always increases
(B) its velocity always increases
(C) it always falls towards the Earth
(D) a net non-zero force always acts on it

14. Inertia is :
(A) A property of matter
(B) A type of force
(C) The speed of an object
(D) The acceleration of an object

15. A particle moves in a circle of radius 30 cm with a constant speed of 6 cm/s. Its angular velocity will be :
(A) 0.2   (B) 0.18
(C) 0.4   (D) 0.5

16. Out of the following, which frequencies are not clearly audible to the human ear ?
(A) 30 Hz   (B) 30,000 Hz
(C) 300 Hz   (D) 3000 Hz

17. A satellite of the earth is revolving in a circular orbit with a uniform speed v. If the gravitational force suddenly disappears, the satellite will
(A) continue to move with velocity v along the original orbit.
(B) move with a velocity v, tangentially to the original orbit.
(C) fall down with increasing velocity.
(D) ultimately come to rest somewhere on the original orbit.

18. Newton × second is the S.I. unit of :
(A) momentum
(B) work
(C) power
(D) gravitational intensity

19. A force of 10 N gives a mass m an acceleration of 5 m s^{-2} and a mass M an acceleration of 15 ms^{-2}. If the two masses are tied together, then acceleration will become :
(A) 20 m s^{-2} (B) 10 m s^{-2}
(C) 3.75 m s^{-2} (D) 2 m s^{-2}

20. Weight of object weighing 10 kg on earth :
(A) will become 49 N on the moon
(B) will become 98 N on moon
(C) will become 16.33 N on the moon
(D) will become 32.66 N on the moon

21. Generally, nonmetals
(A) form cations by gaining electrons
(B) form cations by losing electrons.
(C) are highly stable.
(D) form anions.

22. Some matter and their group are given in column P and Q respectively.

| Column-P	Column-Q
(a) Air	(i) Element
(b) O_2	(ii) Mixture
(c) Copper sulphate	(iii) Base
(d) Sodium hydroxide	(iv) Salt

The correct option is -
(A) a (ii), b (iv), c (i), d(iii)
(B) a(iv) b, (iii), c (ii) d (i)
(C) a (i), b (ii), c (iii) d (iv)
(D) a (ii), b (i), c (iv) d (iii)

23. The formula of Aluminium Oxide is
(A) Al_2O (B) AlO
(C) Al_2O_3 (D) AlO_3

24. Soda is an example of :
(A) gas in a liquid mixture
(B) liquid in a gas mixture
(C) solid in a solid mixture
(D) solid in a gas mixture

25. An atom is made up of negatively charged electrons and positively charged protons. Still it is electrically neutral because :
(A) the electrons and protons are equal in number, so no net charge is present.
(B) the neutrons neutralize the charge and make the atom neutral.
(C) the charge on the atom is too small to be detected.
(D) the charge is always neutral.

Space For Rough Work

26. If atomic weights of carbon and phosphorus are 12 and 31 respectively, then the ratio of neutrons present in them will be :
(A) 3 : 8
(B) 5 : 2
(C) 8 : 3
(D) 12 : 31

27. Statement - 1 $\rightarrow$ The atomic mass of an element is not only relative but is average relative mass of an atom.
Statement - 2 $\rightarrow$ The average word is essential because the element, in general is a mixture of different isotopes and atomic mass is the average of these relative atomic mass.
Choose the correct option :
(A) Statement 1 and 2 are true and statement 2 is the correct explanation of statement 1.
(B) Statement 1 and 2 are true but statement 2 is not the correct explanation of statement 1.
(C) Statement 1 is true but statement 2 is false.
(D) Statement 1 and 2 are false.

28. Analysis of chlorophyll shows that it contains 2.68 percent magnesium. How many atoms of magnesium does 100 g of chlorophyll contain ?
(A) 6.672×10^{23} atoms
(B) 6.7246×10^{21} atoms
(C) 6.672×10^{22} atoms
(D) 6.7246×10^{22} atoms

29. The number of valence electrons and valency in an inert gas is-
(A) 8, 0 respectively
(B) 0, 8 respectively
(C) 8, 8 respectively
(D) 0, 0 respectively

30. All metals -
(A) form cations by gaining electrons
(B) form anions
(C) are highly stable
(D) form cations by losing electrons

31. Osteocytes are the cells of :
(A) muscles
(B) kidneys
(C) bones
(D) blood

32. The tissue responsible for control and coordination in our body is :
(A) connective tissue.
(B) nervous tissue.
(C) muscular tissue.
(D) epithelial tissue.

33. In honeybee colony, drones are :
(A) fertile females
(B) fertile males
(C) sterile males
(D) sterile females

34. Glucose and starch can be differentiated using :
(A) iodine solution
(B) HCl
(C) NaOH
(D) Sudan black

35. Which scientist used the term "Omnis cellula-e-cellula" ?
(A) Robert Hooke
(B) A.V. Leeuwenhock
(C) Rudolf Virchow
(D) M.J. Schleiden

36. The transport of water and soluble mineral nutrients from the roots to all the parts of the plant is done by :
(A) xylem
(B) phloem
(C) collenchyma
(D) sclerenchyma

37. The folds of plasma membrane in bacterial cells are known as
(A) mesosomes
(B) episomes
(C) spherosomes
(D) acrosomes

38. The power house of the cell is commonly known as
(A) mitochondria
(B) plastid
(C) golgi complex
(D) ribosomes

39. The function of the tendon is
(A) to join the bone to the muscle
(B) to provide support and flexibility to the body parts
(C) to conduct heat and maintain body temperature
(D) to help in excretion

Space For Rough Work

40. The chemical substance with water proof quality in plants leaf is -
(A) cutin   (B) pectin
(C) lignin   (D) fat

41. The highest peak in the Eastern ghats is -
(A) Anaimudi   (B) Kanchenjunga
(C) Mahendragiri (D) Khasi

42. Which one of the following causes rainfall during winter in northwestern part of India.
(A) Cyclonic depression
(B) Retreating Monsoon
(C) Southwest Monsoon
(D) Western disturbances

43. Montesquieu wrote :
(A) The social control
(B) Two treatises of government
(C) The spirit of laws
(D) From monarchy to diarchy

44. Cricket's most important tools are all made of _____, pre–industrial materials.
(A) Synthetic   (B) Artificial
(C) Natural   (D) Cotton

45. When is world water day celebrated ?
(A) 5 Jan   (B) 22 March
(C) 5 June   (D) 11 Sept

46. The name of the dam built on Mahanadi is
(A) Bhakra Nangal (B) Gandhi Sagar
(C) Hirakund   (D) Tungbhadra

47. The 1878 Act divided forests into :
(A) Four categories (B) Two categories
(C) Three categories (D) Five categories

48. Konkan is located on the -
(A) West coast of our country
(B) East coast of our country
(C) Southern most point of India
(D) On Kerala coast

49. World Bank use a uniform standard for the poverty line ; minimum availability of the equivalent of _____ per person per day.
(A) Rs. 10000   (B) 100 Yen
(C) 10 Euro   (D) 1.9 U.S. Dollar

50. Frequent change of leadership in a democracy results in
(A) Political competition
(B) Corruption
(C) Instability of the government
(D) Nepotism

51. Which letter comes half way between G and S in the alphabet
(A) M   (B) N
(C) O   (D) P

Direction :(52) There is some relationship between the two terms on the left side of the sigh (::). Select the same relationship between the two terms on the right side.

52. Lion : Cub ::
(A) Father : Child   (B) Aunt : Child
(C) Mother : Child (D) Father : Mother

53. MAT is Coded as 32 and BIG is coded as 0, then FOR will be coded as—
(A) 7   (B) 8
(C) 9   (D) 10

54. Which of the following dices is identical to the unfolded figure as shown here ?
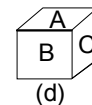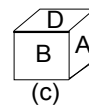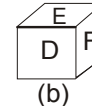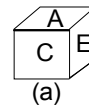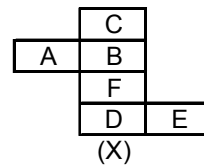
(A) d only   (B) b and d only
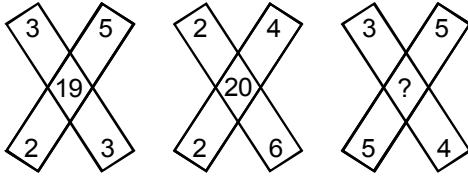(C) a and c only (D) c only

Space For Rough Work

Directions : (55 to 56) Find the missing terms :

55. 55, 210, ?, 820, 1275

(A) 465   (B) 420

(C) 410   (D) 515

56.

(A) 47   (B 45

(C) 37   (D) 35

57. If in the alphabest series are divided in two equal halves from A to M and N to Z, which letter in the later half would be corresponding to the letter J ?

(A) Q   (B) V

(C) X   (D) W

58. Pointing towards a woman in the photograph, Rajesh said "the only daughter of her grandfather(Paternal) is my wife". How is Rajesh related to that woman

(A) Uncle (Fufa)   (B) Father

(C) Maternal uncle   (D) Brother

59
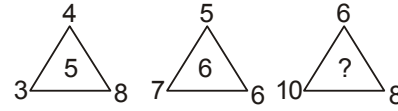
(A) 15   (B) 13

(C) 9   (D) 8

60. Which one of the two interchanges in signs would make the given equation correct ?

$16 + 4 \div 2 - 21 \times 7 = 21$

(A) + and −   (B) + and ×

(C) − and ÷   (D) × and ÷

Space For Rough Work

SAMPLE PAPER–3

ACADEMIC SESSION : 2020-21

FOR CLASS X MOVING STUDENT

Time : 1½ Hr.	Negative Marking 0.25	Maximum Marks : 60

GENERAL INSTRUCTIONS

1. Each question carry 1 marks.

2. Blank papers, clip boards, log tables, slide rule, calculators, mobile or any other electronic gadgets in any form is not allowed.

3. Write your Name and Roll No. in the space provided in the bottom of this booklet.

4. Before answering the paper, fill up the required details in the blank space provided in the answer sheet.

5. Do not forget to mention your roll number neatly and clearly in the blank space provided in the answer sheet.

6. No rough sheets will be provided by the invigilators. All the rough work is to be done in the blank space provided in the question paper.

7. In case of any dispute, the answer filled in the OMR sheet available with the institute shall be final.

8. Post exam Answer Key will be declared. Correction in Answer Key will be accepted till next 36 hours after which no correction will be entairtained.
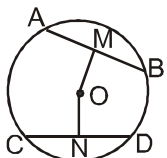
VIBRANT ACADEMY (India) Private Limited

1. Which of the following is a quadratic polynomial in one variable ?

   (A) $\sqrt{2x^3} + 5$ (B) $2x^2 + 2x^{-2}$
   (C) x^2 (D) $2x^2 + y^2$

2. The complement of $(90° - a°)$ is :

   (A) $-a°$ (B) $90° + a$
   (C) $90° - a$ (D) $a°$

3. If $25^{x-1} = 5^{2x-1} - 100$, then the value of x is :

   (A) 0 (B) 1
   (C) 2 (D) None of these

4. O is the centre of a circle, AB and CD are two chords of the circle. OM $\perp$ AB and ON $\perp$ CD. If OM = ON = 3 cm and AM = BM = 4.5 cm, then CD =

   (A) 9 cm (B) 10 cm
   (C) 8 cm (D) 6 cm

5. In $\triangle$ABC, if D is a point on BC such that BD : DC = 3 : 5 then, ar($\triangle$ADC) : ar($\triangle$ABC) = ?

   (A) 3 : 5 (B) 3 : 8
   (C) 5 : 8 (D) 8 : 3

6. If $a = 2 + \sqrt{3}$ and $b = 2 - \sqrt{3}$ then $\dfrac{1}{a^2} - \dfrac{1}{b^2}$ is equal to :

   (A) 14 (B) -14
   (C) $8\sqrt{3}$ (D) $-8\sqrt{3}$

7. A sphere of radius 3 cm is dropped into a cylindrical vessel of radius 4 cm. If the sphere is submerged completely, then the height (in cm) to which the water rises, is :

   (A) 2.35 (B) 2.30
   (C) 2.25 (D) 2.15

8. In a cricket match, a batswoman hits the boundary 6 times out of 30 balls she plays. Find the probability that she did not hit a boundary.

   (A) 0.8 (B) 0.6
   (C) 0.5 (D) 0.2

9. Simplify : $\dfrac{2}{\sqrt{5} + \sqrt{3}} + \dfrac{1}{\sqrt{3} + \sqrt{2}} - \dfrac{3}{\sqrt{5} + \sqrt{2}}$.

   (A) 1 (B) 0
   (C) 10 (D) 100

10. In a $\triangle$ABC, D, E and F are respectively, the mid-points of BC, CA and AB. If the lengths of side AB, BC and CA are 17 cm, 18 cm and 19 cm respectively, then the perimeter of $\triangle$DEF equal to :

    (A) 54 cm (B) 18 cm
    (C) 27 cm (D) 13.5 cm

11. Two bodies of same mass have velocities in ratio 2:3. The ratio of their kinetic energies will be :

    (A) 2 : 3 (B) 4 : 9
    (C) 2 : 3 (D) 8 : 27

12. The relative density of silver is 10.5, if the density of water is 1000 kgm^{-3}, then density of silver will be :

    (A) 10.5 kgm^{-3} (B) 1050 kgm^{-3}
    (C) 105 kgm^{-3} (D) 10500 kgm^{-3}

13. A metal object when fully immersed in water, displaces 2 litres of water. What is the loss in the weight in water ?

    (A) 10 N (B) 24 N
    (C) 17.5 N (D) 19.6 N

14. A particle moves in a circle of radius 2m and completes one round in 10 seconds. Calculate the linear velocity :

    (A) 20π m/s (B) 0.4π m/s
    (C) 200π m/s (D) 0.2π m/s

(Space For Rough Work)

15. Inertia of an object is the natural tendency of :
(A) Changing its state of motion
(B) Stopping the motion
(C) Offering a resistance to change its state of rest only
(D) Offering a resistance to change its state of rest or motion

16. A body does 20 joules of work in 4 seconds. Its power is :
(A) 4 watt   (B) 5 watt
(C) 20 watt   (D) 80 watt

17. A device which converts mechanical energy into electrical energy is known as :
(A) electric motor   (B) generator
(C) lever   (D) microphone

18. A body of mass 2 kg is thrown upward with initial velocity 20 m/s. After 2s its kinetic energy will be : ($g = 10$ m/s^2)
(A) 400 J   (B) 200 J
(C) zero   (D) 100 J

19. A person is listening to a tone of 500 Hz sitting at a distance of 450 m from the source of the sound. What is the time interval between the successive compression from the source ?
(A) 5 ms   (B) 1 ms
(C) 2 ms   (D) 2 s

20. A train travels 40 km at a uniform speed of 30 km h^{-1}. Its average speed after travelling another 40 km is 45 km h^{-1} for the whole journey. Its speed in the second half of the journey is
(A) 45 km h^{-1} (B) 90 km h^{-1}
(C) 60 km h^{-1} (D) 30 km h^{-1}

21. In which compound sublimation property is not found ?
(A) Ammonium chloride   (B) Camphor
(C) Copper sulphate   (D) Naphthalene

22. An element A forms an oxide A_2O_3, the valency of A is :
(A) 3   (B) 4
(C) 5   (D) 1

23. The formula of Aluminium Oxide is
(A) Al_2O (B) AlO
(C) Al_2O_3 (D) AlO_3

24. Soda is an example of :
(A) gas in a liquid mixture
(B) liquid in a gas mixture
(C) solid in a solid mixture
(D) solid in a gas mixture

25. All nonmetals -
(A) form cations by gaining electrons
(B) form cations by losing electrons
(C) are highly stable
(D) form anions

26. When calcium metal (Ca) changes to calcium ion (Ca^{+2}) the number of electron, proton and neutron -
((A) Remains same
(B) Number of neutrons remains the same while the number of both protons and electrons changes.
(C) Number of neutrons and protons remains same while the number of electrons decreases by 2.
(D) Number of neutrons and electrons remains the same while number of protons increases by 2

27. Which of the following statement is not correct about true solution ?
(A) It can pass through filter paper .
(B) It is homogeneous in nature .
(C) At constant temperature, particles of solute settle down.
(D) From a true solution, the solute can easily be recovered by evaporation or crystallisation.

(Space For Rough Work)

28. Which among the following elements is a metalloid?
(A) Beryllium   (B) Barium
(C) Boron   (D) Bismith

29. Mass of an electron is -
(A) 1/1650 amu   (B) 9.1×10^{-31} kg
(C) 1.6×10^{-27} kg   (D) 10^{-10} kg

30. Cloud is an example of -
(A) soild dispersed in a gas.
(B) liquid dispersed in a gas.
(C) liquid dispersed in a soild.
(D) solid dispersed in a liquid.

31. The organelles that contain their own genetic material are :
(A) mitochondria, vacuoles
(B) plastids, golgi complex
(C) mitochondria, plastids
(D) ribosomes, nucleolus

32. The cell capable of changing its shape is
(A) chondrocyte   (B) osteocyte
(C) WBC   (D) RBC

33. Plant cell wall is composed of :
(A) Lignin   (B) Cellulose
(C) Suberin   (D) Starch

34. Most of the monocots lack
(A) Tap root system
(B) phloem parenchyma
(C) companion cells
(D) sieve tube

35. The cells of the cork of the older plants have deposits of
(A) lignin   (B) cutin
(C) calcium   (D) suberin

36. Two bones are connected to each other by a
(A) ligament   (B) calcium
(C) tendon   (D) potassium

37. In honeybee colony, drones are :
(A) fertile females   (B) fertile males
(C) sterile males   (D) sterile females

38. Match List I with List II and select the correct answer using the codes given below the lists.
List – I   **List – II**
(Plant tissue)   **(Function)**
A. Sclerenchyma **1.** Conduction of water
B. Xylem   **2.** Transport of food
C. Phloem   **3.** Mechanical strength
D. Meristem   **4.** Cell Division

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

39. Kingdom monera includes.
(A) Algae   (B) Bacteria
(C) Mycoplasma   (D) All of the above.

40. Goitre is a type of
(A) infectious disease.
(B) contagious disease.
(C) deficiency disease.
(D) genetic disorder.

41. Konkan is located on the -
(A) West coast of our country
(B) East coast of our country
(C) Southern most point of India
(D) On Kerala coast

42. _____ was the year of Great Agrarian depression.
(A) 1930   (B) 1935
(C) 1925   (D) 1920

(Space For Rough Work)

43. Montesquieu wrote :
(A) The social contract
(B) Two treatise of government
(C) The spirit of laws
(D) From monarchy to diarchy

44. 73rd constitutional amendement belongs to :
(A) Judiciary
(B) Executive
(C) State legislature
(D) Local self Govt.

45. What was the duration of 'Reign of Terror' ?
(A) 1791 – 92 AD (B) 1792 – 93 AD
(C) 1793 – 94 AD (D) 1794 – 95 AD

46. Cyrus Mclormick invented the first mechanical reaper in
(A) 1828 (B) 1829
(C) 1930 (D) 1831

47. Cricket's most important tools are all made of
_____, pre–industrial materials.
(A) Synthetic (B) Artificial
(C) Natural (D) Cotton

48. In America Universal adult Franchise was introduced in:
(A) 1789 (B) 1950
(C) 1935 (D) 1965

49. The river Narmada has its source at :
(A) Satpura
(B) Amarkantak
(C) Brahmgir
(D) Eastern slope of the western ghats

50. Which one of the following is the smallest state of India?
(A) Lakshadweep
(B) Andaman & Nicobar
(C) Daman & Diu
(D) Goa

Directions (51 to 54): Find the missing numbers/ letter/terms :

51. 78, 79, 81, ?, 92, 103, 119
(A) 88 (B) 85
(C) 84 (D) 83

52.

CK	6	9	JR
OF	9	12	TX
KM	?	?	PV

(A) 4, 6 (B) 6, 8
(C) 8, 10 (D) 10, 12

53. ab – cb – c – c – – b
(A) bcaaa (B) aabbc
(C) abcab (D) acbca

54.

?	4	52
45	11	43
67	23	28
25	16	37

(A) 3 (B) 2
(C) 5 (D) 6

55. If in any code language, **SAGAR** is coded on **GXQVD**, How is **KUMAR** coded in that language
(A) GWQVD (B) ODKVD
(C) GXOVD (D) HXQVD

(Space For Rough Work)

56. If the following scrambled letters are rearranged to form the name of a city, the city so formed is famous for its :

AAGHILR

(A) Locks   (B) Steel Plant

(C) Temples   (D) Pottery

57. If **DRIVER = 67** and **TRUCK = 37** , what would be **MOPAD** ?

(A) 45   (B) 55

(C) 94   (D) 95

58. I run along the sides of square field ABCD where C is to the north east of A and D is to the south east of B. Starting from A in anticlock wise direction, in which direction shall I be running after crossing B ?

(A) North   (B) South

(C) East   (D) West

59. Count the number of squares in the following figure :
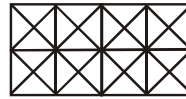
(A) 15   (B) 21

(C) 24   (D) 26

60. In a code language.

     PEN = 534

     SUN = 412

     SET = 651

Then PUNE = ?

(A) 3254   (B) 3245

(C) 3425   (D) 3542

(Space For Rough Work)

SAMPLE PAPER-1
CLASS-X(ANSWER KEY)

Ques	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	C	C	D	B	A	B	B	B	A	A	B	A	B	C	C
Ques	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	C	D	A	A	D	B	D	B	C	D	A	C	A	D	C
Ques	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	A	D	D	B	D	A	B	A	B	B	A	C	C	D	C
Ques	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	A	C	C	B	B	A	A	D	B	A	D	C	A	D	D

SAMPLE PAPER-2
CLASS-X(ANSWER KEY)

Ques.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	D	C	B	C	C	D	C	A	B	C	D	A	D	A	A
Ques.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	B	B	A	C	C	D	D	C	A	A	A	A	D	A	D
Ques.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	C	B	C	A	C	A	A	A	A	A	C	D	C	C	B
Ques.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	C	C	A	D	C	A	A	C	A	A	C	D	A	D	D

SAMPLE PAPER-3
CLASS-X(ANSWER KEY)

Ques.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	C	D	C	A	C	D	C	A	B	C	B	D	D	B	D
Ques.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	B	B	C	C	B	C	A	C	A	D	C	C	C	B	B
Ques.	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Ans.	C	C	B	A	D	A	B	C	B	C	A	A	C	D	C
Ques.	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Ans.	D	C	D	B	D	B	C	A	A	B	A	C	B	C	B