# SAMPLE PAPER-01
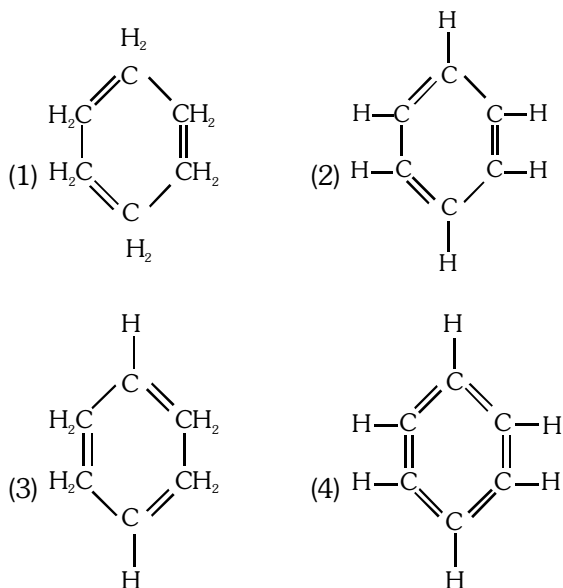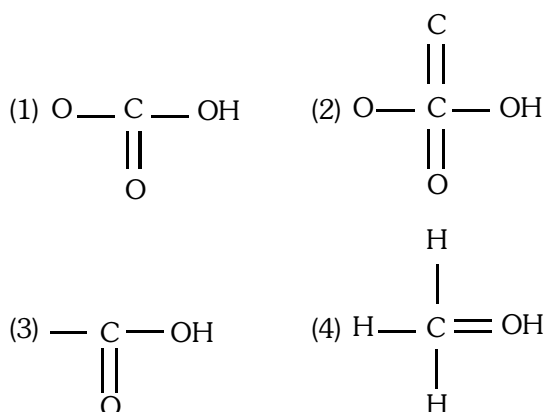
1. For magnification in spherical mirrors object height is taken
   (1) negative.
   (2) positive.
   (3) positive for real images.
   (4) negative for virtual images.

2. Nipermag is an alloy of :
   (1) iron, nickel, aluminium, cobalt
   (2) iron; titanium, nickel, cobalt
   (3) iron, nickel, aluminium, titanium
   (4) iron, nickel, cobalt, titanium '

3. If 6.4 A current flows continuously for 4 seconds through a circuit, find the number of electrons flowing
   (1) $4.8 \times 10^{-19}$
   (2) $4.8 \times 10^{19}$
   (3) $1.6 \times 10^{-19}$
   (4) $16 \times 10^{19}$

4. After refraction of light through a glass slab, incident ray and refracted (emergent) ray are :
   (1) perpendicular
   (2) parallel
   (3) in a straight line
   (4) (1) & (3)

5. Convex lens is not used in :
   (1) simple microscope
   (2) spectacles
   (3) telescope
   (4) flood lights

6. Magnetic field due to current carrying conductor depends
   (1) current flowing through conductor
   (2) distance from the conductor
   (3) length of the conductor
   (4) (1) & (2)

7. Correct order of increasing resistivity of materials at 20°C :
   (1) Conductors $\rightarrow$ Insulators $\rightarrow$ Alloys
   (2) Alloys $\rightarrow$ Insulators $\rightarrow$ Conductors
   (3) Alloys $\rightarrow$ Conductors $\rightarrow$ Insulators
   (4) Conductors $\rightarrow$ Alloys $\rightarrow$ Insulators

8. If sum of velocities of light in two media is $3.25 \times 10^8$ m/s and their difference is $0.75 \times 10^8$ m/s, find the refractive index of the second medium with respect to one ;
   (1) 1.25
   (2) 1.6
   (3) 1.5
   (4) 1.3

9. The ability of a lens to converge or diverge light rays depends on :
   (1) principal axis
   (2) focal length
   (3) object distance
   (4) image distance

10. The frequency of direct current is
    (1) 0 Hz
    (2) 50 Hz
    (3) 100 Hz
    (4) 25 Hz

11. As the thickness of the atmosphere increases colour of scattered light is found in the_____ order.
    (1) blue, violet, yellow, red
    (2) violet, blue, yellow, red
    (3) red, yellow, blue, violet
    (4) violet, blue, red, yellow

12. Value of acceleration due to gravity of earth is maximum :
    (1) At centre of earth
    (2) At surface of earth
    (3) At a height of 50 km from earth's surface
    (4) At a height of 12 km from earth's surface

13. A ray of light is incident on the surface of separation of a medium at an angle of incidence 45° and is refracted in the medium at an angle of refraction 30°. What will be the velocity of light in the medium?
    (1) $1.96 \times 10^8$ m/s
    (2) $2.12 \times 10^8$ m/s
    (3) $3.18 \times 10^8$ m/s
    (4) $3.33 \times 10^8$ m/s

14. Orange, blue and yellow are three of the colours formed by a prism. Their order according to increasing deviation is
    (1) blue, orange, yellow
    (2) yellow, blue, orange
    (3) blue, yellow, orange
    (4) orange, yellow, blue

15. _____is obtained by heating Gypsum.
    (1) Alum
    (2) Unhydrous $CuSO_4$
    (3) Burnt alum
    (4) Plaster of Paris

16. S-block elements are
    (1) Elements of group I-A and III-B
    (2) Elements of group I-A and II-A
    (3) Elements of group I-A and I-B
    (4) Elements of group I-A and II-B

17. Chemical formula of Bleaching powder is
    (1) $Ca_2OCl_2$
    (2) $Ca(OOI_2)_2$
    (3) $CaOCl_2$
    (4) $CaCl_2$

**18.** The elements in the same group have

(1) Same number of shells

(2) Atomic size decreases

(3) Same number of valence electrons

(4) Metallic properties decreases

**19.** $2H_2S + SO_2 \rightarrow 3S + 2H_2O$ In the above reaction

(a) $H_2S$ gets oxidised    (b) $SO_2$ gets reduced

(c) $H_2S$ gets reduced    (d) $SO_2$ gets oxidised

(1) (a) & (c)            (2) (b) & (c)

(3) (a) & (b)            (4) (d) & (d)

**20.** Which of the following metals exist in their native state ?

(a) Calcium            (b) Au

(c) Zn                  (d) Ag

(1) (b) & (c)            (2) (a) & (b)

(3) (a) & (c)            (4) (b) & (d)

**21.** Which of the solution will remain colourless with phenolphthalein indicator ?

(1) Soap solution       (2) $Ca(OH)_2$ solution

(3) Vinegar solution     (4) Baking soda solution

**22.** Aquaregia is a mixture of

(1) 3:1 conc. HCl and conc. $HNO_3$

(2) 3:1 conc. $HNO_3$ and conc. $H_2SO_4$

(3) 3 : 1 conc. $HNO_3$ and conc. HCl

(4) 1 : 3 conc. HCl and conc. $HNO_3$

**23.** The correct structural formula of Benzene is



**24.** Identify the functional group present in Acetic Acid.



**25.** Amongst the following, which solution shows Tyndall effect ?

(a) Salt solution        (b) Milk

(c) $CuSO_4$ solution     (d) Starch solution

(1) (a) & (d)            (2) (c) & (d)

(3) (a) & (c)            (4) (b) & (d)

**26.** Which of the following is endothermic reaction?

(1) $C(s) + O_2(g) \longrightarrow CO_2(g)$

(2) $N_2(g) + O_2(g) \longrightarrow 2NO(g)$

(3) $2H_2(g) + O_2(g) \longrightarrow 2H_2O(\ell)$

(4) $2CH_3OH (\ell) + 3O_2(g) \longrightarrow 2CO_2(g) + 4H_2O(\ell)$

**27.** The pH value of 100 litre aqueous solution containing 4 gram NaOH is

(1) 3       (2) 9       (3) 11       (4) 14

**28.** Which is the largest gland in the body ?

(1) Liver            (2) Pancreas

(3) Salivary glands      (4) Stomach

**29.** Find the correct order of blood circulation through heart.

(1) Right atrium → Right ventricle → Lungs →Left atrium → Left ventricle → Body

(2) Right ventricle → Right atrium → Lungs →Left atrium → Left ventricle → Body

(3) Left atrium → Left ventricle → Lungs → Right atrium → Right ventricle → Body

(4) Left ventricle → Left atrium → Lungs → Right atrium → Right ventricle → Body

**30.** Of the following which plant hormone inhibits growth ?

(1) Cytokinins       (2) Gibberelins

(3) Auxins           (4) Abscisic acid

31. Where are reflex arcs formed ?
    (1) Brain      (2) Spinal cord
    (3) Muscle      (4) Skin

32. Two individuals produced from a single zygote are
    (1) Two girls looking similar
    (2) Two girls not looking similar
    (3) Two boys not looking similar
    (4) One boy and one girl not looking similar

33. Of the following cross-pollination does not take place due to
    (1) Wind      (2) Water
    (3) Light      (4) Animals

34. In hybrid cross the phenotypic ratio for $F_2$ generation is
    (1) 1:3      (2) 3 : 1
    (3) 1:2:1      (4) 2 : 1 : 1

35. Which is not a vestigial organ in human body ?
    (1) Tail-bone      (2) Ear Muscle
    (3) Intertail      (4) Nail

36. _____ is a man-made source of air pollution.
    (1) Desert      (2) Farming
    (3) Dust storms      (4) Volcanic eruptions

37. _____ can replace wood in cement bonded particle board.
    (1) Rice straw      (2) Glass
    (3) Wheat straw      (4) Paper

38. Of the following which is a greenhouse gas ?
    (1) Nitrogen dioxide      (2) Sulphur dioxide
    (3) Carbon dioxide      (4) Carbon monoxide

39. Every trophic level transfers _____ of its energy to the next level.
    (1) 0.1%    (2) 1%    (3) 10%    (4) 100%

40. What are the objectives of mock drill?
    (i) Identification of own abilities.
    (ii) Checking the competency of planned actions.
    (iii) Identifying possible errors and risks.
    (iv) Improving the ability of quick response to disaster.
    (1) (i) and (iv)      (2) (i), (ii) and (iv)
    (3) (i), (ii) and (iii)      (4) All of these

41. If $\alpha + \beta = 3$ and $\alpha^3 + \beta^3 = 9$, find the quadratic equation whose roots are $\alpha$ and $\beta$.
    (1) $x(x - 2) = 3$      (2) $x + \dfrac{2}{x} + 3 = 0$
    (3) $x^2 - 2x + 3 = 0$      (4) $x + \dfrac{2}{x} = 3$

42. What type of graphs of the equation $x + y = 5$ and $x - y = 1$ will be?
    (1) Parallel lines      (2) Intersecting lines
    (3) Lines coincide      (4) Concurrent lines

43. Find the incorrect formula from the following
    (1) $\text{Median} = L + \left( \dfrac{N}{2} - \text{c.f.} \right) \dfrac{h}{f}$
    (2) $\text{Mode} = L + \left( \dfrac{f_m - f_1}{2f_m - f_1 - f_2} \right) h$
    (3) $\text{Mean} = \dfrac{\sum f_i x_i}{\sum x_i}$
    (4) $\overline{X} = \dfrac{\sum f_i x_i}{\sum f_i}$

44. In a 400 m running race, there are 'n' competitors and they are numbered at random. Find the probability that Sujata, numbered 12, will get 6th rank in the race.
    (1) $\dfrac{1}{6}$    (2) $\dfrac{1}{n-1}$    (3) $\dfrac{n-1}{n}$    (4) $\dfrac{1}{n}$

45. A person got a job with a fixed salary and a certain yearly increment. After 2 years his salary was Rs. 10,000 and after 4 years it was Rs. 15,000. Find his salary after 10 years.
    (1) Rs. 32,500      (2) Rs. 27,500
    (3) Rs. 27,250      (4) Rs. 30,000

46. Multiply:
    $$\sqrt[3]{2} \times \sqrt[4]{3}$$
    (1) $\sqrt[12]{6}$    (2) $\sqrt[12]{72}$    (3) $\sqrt[12]{648}$    (4) $\sqrt[12]{432}$

47. An obtuse angle of a rhombus is greater than twice the acute angle by 30°. Find the measure of each angle.
    (1) 50°    (2) 130°    (3) 80°    (4) 60°

**48.** Find the sum of the cubes of the roots of the equation $3y^2 - 14y + 8 = 0$.
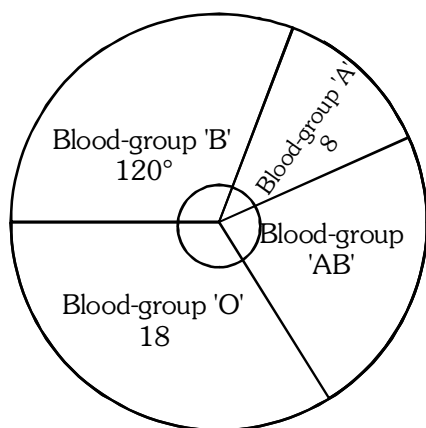
(1) $\dfrac{1728}{27}$      (2) $\dfrac{1736}{27}$

(3) $\dfrac{1730}{27}$      (4) $\dfrac{1732}{27}$

**49.** Find the factors of the polynomial

$8a^3 + 27b^3 + 64c^3 - 72abc$.

(1) $(2a + 3b + 4c)(4a^2 + 9b^2 + 16c^2 - 6ab + 12bc - 8ac)$

(2) $(2a + 3b + 4c)(4a^2 + 9b^2 + 16c^2 + 6ab - 12bc + 8ac)$

(3) $(2a + 3b + 4c)(4a^2 + 9b^2 + 16c^2 - 6ab - 12bc - 8ac)$

(4) $(2a + 3b + 4c)(4a^2 + 9b^2 + 16c^2 - 6ab - 12bc + 8ac)$

**50.** In a class there are 60 students. The following pie diagram shows the number of students according to blood-group. There are 8 students having blood-group A, 18 students having blood-group 'O'. Students having 'B' group are represented by 120°. Find the number of students having 'AB' blood-group
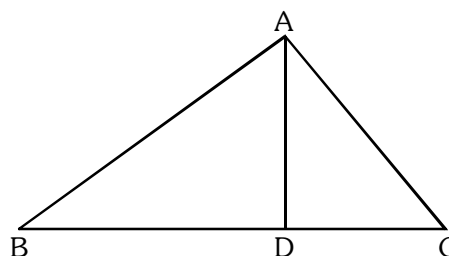


(1) 14     (2) 16     (3) 18     (4) 20

**51.** Which of the following hedrons have only three rectangular faces ?

(1) Right circular cylinder

(2) Triangular prism

(3) Prism with square base

(4) Triangular pyramid

**52.** In the figure given below, point D is on side BC of $\triangle ABC$ such that $\angle ABC \cong \angle DAC$. If AB = 9, AD = 4, AC = 5, then ar($\triangle ADC$) : ar($\triangle BAC$) =



(1) 81 : 16      (2) 9 : 4

(3) 4 : 9      (4) 16 : 81

**53.** The angle of elevation and the angle of depression are 30° and 60° respectively when seen from the top of the first building to the top and base of the second building. If the distance between the bases of two building is 12 m, then find the height of big building.

(1) $16\sqrt{3}$ m      (2) $12\sqrt{3}$ m

(3) $14\sqrt{3}$ m      (4) $20\sqrt{3}$ m

**54.** The equations of line AB and line PQ are $y = -\dfrac{1}{2}x$ and x = 2y respectively. Find the measure of angle $\angle BOQ$ which is formed by intersection of line AB and line PQ.
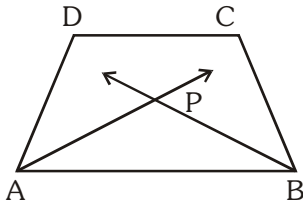
(Point P and point A are in first and second quadrant respectively)

(1) 60°      (2) 150°

(3) 90°      (4) 120°

**55.** The area of triangle formed by joining the centres of three congruent externally touching circles, is $49\sqrt{3}$ sq-cm, then find the radius of circle.
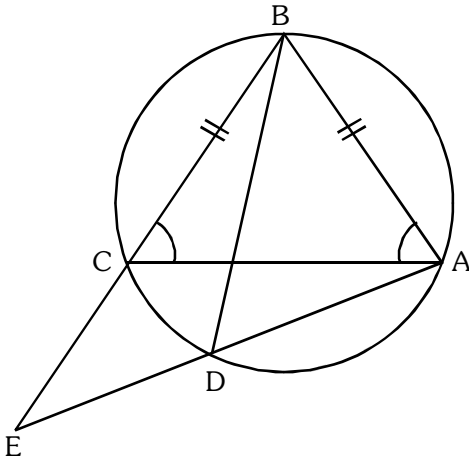
(1) $\sqrt{7}$ cm      (2) 7 cm

(3) $7\sqrt{3}$ cm      (4) $4\sqrt{3}$ cm

**56.** If the angle bisectors of ∠DAB and ∠CBA of any quadrilaternal ABCD intersects at the point P, then find 2m∠APB:



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

**57.** In figure, for ΔABC, chord AB ≅ chord BC, ∠ABC = 72° and the angle bisector of ∠ABC intersects the circle in point D, then what is the measure of angle ∠BEA ?
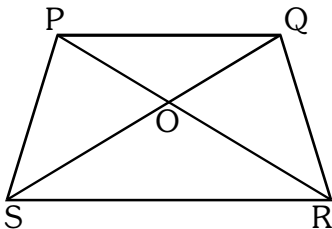


(1) 100°  (2) 36°  (3) 18°  (4) 54°

**58.** What is the value of $\sin^2 0 + \sin^2 1 + ... + \sin^2 90$ ?

(1) 0  (2) 45  (3) $\dfrac{89}{2}$  (4) $\dfrac{91}{2}$

**59.** In trapezium PQRS, seg PQ || seg SR. Diagonal PR and diagonal QS intersect each other at point O. If PO = x + 4; QO = x + 2; RO = x + 10 and SO = x + 7, then PQ : RS = ?



(1) 3 : 2  (2) 2 : 3  (3) 4 : 9  (4) 9 : 4

**60.** One solid hemisphere melted into solid sphere, then what is the ratio of radius of solid sphere to radius of solid hemisphere ?

(1) $\sqrt[3]{2} : 1$  (2) 8 : 1  (3) $1 : \sqrt[3]{2}$  (4) 1 : 8

**61.** Which country is known as "Coffee Pot" of the world?
(1) India  (2) Brazil
(3) Korea  (4) Bangladesh

**62.** Which is the second largest country in the world?
(1) India  (2) Korea
(3) Bangladesh  (4) China

**63.** Which of the following is the southern tip of India?
(1) Indira point  (2) Kanayakumari
(3) Tamil Nadu  (4) Sri Lanka

**64.** Pick the odd one out
(1) Uttar Pradesh
(2) Dadar and Nagar Haveli
(3) Delhi
(4) Andaman and Nicobar

**65.** Find out the capital of Brazil
(1) Brasilia  (2) Santo
(3) Goias  (4) Amazonas

**66.** Brazil was under the which of the following Colony?
(1) Dutch  (2) Portuguese
(3) English  (4) Britain

**67.** The western part of the Northern India plains is occupied by _____.
(1) Desert  (2) Plateau
(3) Mountain  (4) None of these

**68.** In which year India and Brazil first census carried out?
(1) 1872  (2) 1873  (3) 1876  (4) 1875

**69.** Koyali, Digboi, Noonmati and Bongaigan is associated with
(1) Petroleum  (2) Coal
(3) Diamond  (4) Gold

**70.** India is an importer of
A. Petroleum  B. Machines
C. Pearls  D. Silver
(1) A and B  (2) A and C
(3) A, B, D  (4) A, B, C, D

**71.** Who was the founder of Modern Historiography?
(1) Voltaire  (2) Rene Descartes
(3) Gorge William  (4) None of these

**72.** Who wrote Archaeology of Knowledge ?
(1) Michel Foucault  (2) Annals
(3) Karl Marx  (4) Fredric Hegel

**73.** In which year 'The History of British India ' was published ?
(1) 1875  (2) 1817
(3) 1871  (4) 1845

**74.** Who was the first Director General of the Archaeological Survey of India?

(1) Sir Alexander Cunningham

(2) Sir Michel

(3) James Mill

(4) None of these

**75.** Which of he following History is also Known as a Public History ?

(1) Applied      (2) Public

(3) Modern      (4) All of the above

**76.** Expand INTACH

(1) Indian National Trust for Art and Cultural Heritage

(2) International National Trust for Art and Cultural Heritage

(3) India National Trust for Art and Cultural Heritage

(4) Indian National Trustee ship for Art and Cultural Heritage

**77.** Mansollas was written by?

(1) Somaveshvara      (2) Kalahan

(3) Banbhatt      (4) None of these

**78.** Which school of art has Greek Influence?

(1) Greek      (2) Mathura

(3) Both (1) and (2)      (4) None of these

**79.** In which year Shiv Sena was established?

(1) 1966      (2) 1964

(3) 1925      (4) 1986

**80.** Who was known as "Waterman of India"?

(1) Dr Rajendrasinh Rana

(2) Ramabai Ranade

(3) Rajnish Paliwal

(4) None of these

**81.** In which year one party system came to be end?

(1) 1989   (2) 1986   (3) 1987   (4) 1984

**82.** In which of the following city Reserve Bank museum is located?

(1) Nagpur      (2) Poona

(3) Madras      (4) None of these

**83.** Major Kuldeep Sing Brar is associated with -

(1) Operation Blue star

(2) Operation Thunder

(3) Operation Blue bale

(4) Operation Vijay

**84.** Which tribe is also known as martial tribe?

(1) Naga      (2) Mizo

(3) Mani      (4) None of these

**85.** In which of the following five year plan China invaded in Pakistan ?

(1) Fisrt Five year plan

(2) Second Five year plan

(3) Third Five year plan

(4) Fourth Five year plan

**86.** Who appointed Dr Manmohan Singh as Finance Minister?

(1) P.V Narsima Rao

(2) Dr Kalam

(3) Atal Bihari Vajpayee

(4) Sonia Gandhi

**87.** Pick up the countries where India exports bicycle

A. Nigeria      B. Mexico

C. Brazil      D. Russia

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

(3) A, D      (4) A, B, C

**88.** Which of the following is not the organ of UNO?

(1) General Assembly

(2) The Security Council

(3) The Trusteeship Council

(4) The World Bank

**89.** Which of the following are the official languages of UNO?

A. Arabic      B. Chinese

C. English      D. Germany

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

(3) A, B, C      (4) A, D, C

ALLEN

**90.** Identify the flag by reading following description-

"Light blue background, two olive branches opening at the top and in between them is world map"

(1) UN     (2) ILO     (3) IMO     (4) OIT

**91.** Which of the following country assisted India to have steel plants and Bhiali and Bokaro?

(1) Russia          (2) Brazil

(3) Nepal          (4) Bangladesh

**92.** During eruption, when the magma comes out not from a single vent but from many crack it is called?

(1) Central type          (2) Fissure type

(3) Both (1) and (2)      (4) None of these

**93.** Find out the incorrect statement in context with "Weathering "

(1) Weathering can be physical and biological only

(2) In arid climate .mechanical weathering is dominant while in humid climate chemical weathering is effective

(3) Biological weathering occurs because of living organism

(4) The exposed part of the rock heats more while inner part is comparatively cooler

**94.** "Principles of Economics " is written by -

(1) Dr. Alfred Mashal      (2) Adam smith

(3) Robbins           (4) None of these

**95.** Identify the type of rainfall by read following sentence -

"Specific air formation when the pressure at the area is less than the surrounding region "

(1) Orographic         (2) Cyclonic

(3) Conventional      (4) None of these

**96.** Depending on the location of the deposit, moraines can be

(1) Ground

(2) Lateral

(3) Medial

(4) All of the above

**97.** The weathered materials do not move downwards but sink in situ it is called

(1) Slumping

(2) Siling

(3) Erosion

(4) None of these

**98.** The process occurs in rocks which have iron present in them is known as

(1) Oxidation

(2) Idolization

(3) Rusting

(4) None of these

**99.** Which of the following waves are called forward and backward waves?

(1) P Waves

(2) S waves

(3) L Waves

(4) Both (1) and (3)

**100.** Which of the following country was the first to recognize "Chinese Communist Government" in 1949?

(1) India          (2) Nepal

(3) Sri lanka       (4) USA

SPACE FOR ROUGH WORK