

SAMPLE PAPER-01

SCHOLASTIC APTITUDE TEST

- A man travels 100 meter on a straight road with speed of 20m/s, stops for 5 sec. and returns to its starting position. What will be its average speed and average velocity ?

(1) 20 m/s and 5 m/s
 (2) 10m/s and Zero
 (3) 13.3 m/s and Zero
 (4) 10 m/s and 5 m/s
- A motor cycle of mass 100 kg increases its velocity from 18 km/hr to 54 km/hr in 2 minutes. Calculate the : (a) work done by the engine (b) power of the engine in Horse Power (H. P.)

(1) 15,000J, 0.11 H.P. (2) 10,000J, 0.11 H. P.
 (3) 4.500J, 11 H. P. (4) 55.000J, 11 H. P.
- A boy is rotating a stone of mass 500 gm in a circle by using a string of length 50 cm with a speed 10 cm/s. What will be the work done by the force applied by the boy ?

(1) $0.01 \pi J$ (2) πJ
 (3) $10 \pi J$ (4) Zero
- A planet of volume V and Mass m has gravitational acceleration g on its surface. If it expands to 8 times its original volume, what will be the acceleration due to gravity ?

(1) 4g (2) 2g (3) g/4 (4) g/8
- A boy weighing 350N runs up a flight of 30 steps each of 20 cm height in 5 seconds. Calculate the power expended.

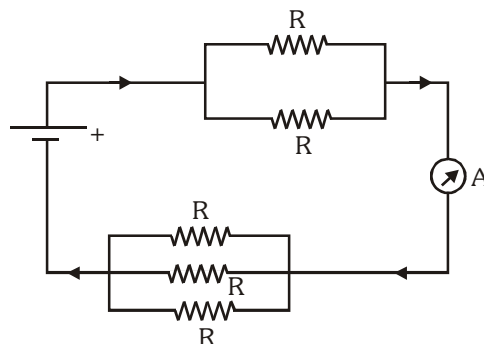
(1) 50 Watts (2) 63 Watts
 (3) 70 Watts (4) None of these
- A vessel is 2 metre deep. How deep it will appear if it is filled with water and viewed from above ?

(1) 2m (2) 3m
 (3) 3/2 m (4) none of the above
- In a nuclear reaction given below, the total energy released is 355 KeV and the binding energy of electron is 35 KeV. The energy E of the neutrino will be

$${}^{131}_{55}\text{Cs} + {}^0_{-1}e \rightarrow {}^{131}_{54}\text{Xe} + \nu \text{ (neutrino)}$$

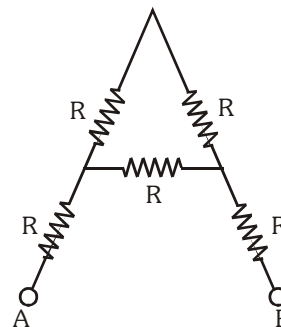
(1) $E < 355 \text{ KeV}$ (2) $E = 355 \text{ KeV}$
 (3) $E > 355 \text{ KeV}$ (4) None of these

- In the circuit given below what will be the ratio of current flowing in the upper arm 'R' and lower arm 'R'?



- (1) 2/3 (2) 5/3 (3) 3/2 (4) 1/5

- What will be the equivalent resistance between points A and B in the given circuit.



- (1) $(5/3) R$ (2) $2 R$ (3) $(8/3) R$ (4) $3 R$

- A rectangular coil of copper wire is rotated in a magnetic field which is perpendicular to the rotationary axis of coil. The direction of the induced current changes once in each

(1) revolution
 (2) two revolutions
 (3) half revolution
 (4) one fourth of a revolution
- The kinetic energy of body A is 4 times that of body B. If the mass of body B is $\frac{1}{4}$ th the mass of body A, the ratio of their velocities is

(1) 2 : 1 (2) 1 : 2
 (3) 1 : 1 (4) None of these
- The far point of a myopic person is 100 cm in front of the eye. What is the power of the lens required to correct the problem ?

(1) -1.0 D (2) +1.0D
 (3) -1.25D (4) +1.25D

- 13.** Analyse the given statements and choose the correct option.
Statement-I : When current is represented by a straight line, the magnetic field will be circular.
Statement-II : According to Fleming's left hand rule, the direction of the force is parallel to the magnetic field.
 (1) Both statement-I and statement-II are correct and statement-II is the correct explanation of statement-I.
 (2) Both statement-I and statement-II are true but statement-II is not the correct explanation of statement-I.
 (3) Statement-I is true but statement-II is false.
 (4) Statement-I is false but statement-II is true.
- 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.** 20 ml of CO is allowed to react with 30 ml of O₂. After reaction the volume of the gas mixture will be
 (1) 50 ml (2) 40 ml (3) 30 ml (4) 70 ml
- 16.** If n and ℓ be the principal and secondary quantum numbers respectively, the total number of electrons in a given energy level will be
 (1) $\sum_{\ell=0}^{\ell=n-1} 2(2\ell+1)$ (2) $\sum_{\ell=0}^{\ell=n} 2(2\ell+1)$
 (3) $\sum_{\ell=0}^{n=\ell+1} 2(2\ell+1)$ (4) $\sum_{\ell=1}^{\ell=n-1} 2(2\ell+1)$
- 17.** The element which reacts with water to produce O₂ is
 (1) P₄ (2) Na (3) F₂ (4) I₂
- 18.** Which of the following is least soluble in water ?
 (1) CaSO₄ (2) MgSO₄
 (3) Na₂SO₄ (4) BaSO₄
- 19.** Mg burnt in air gives out
 (1) MgO (2) Mg₃N₂
 (3) MgO + Mg₃N₂ (4) MgCO₃
- 20.** In the reaction H₂S + Cl₂ → 2HCl + S which matter is oxidising ?
 (1) H₂S (2) Cl₂
 (3) S (4) HCl
- 21.** For a given gas at unit volume, the internal energy and pressure are related as
 (1) $P = \frac{2}{3} E$ (2) $P = \frac{3}{2} E$
 (3) $P = \frac{1}{2} E$ (4) $P = 2E$
- 22.** FeCl₃ in aqueous solution is acidic because
 (1) FeCl₃ reacts with water
 (2) Fe³⁺ ion reacts with water
 (3) Cl⁻ ion reacts with water
 (4) FeCl₃ replaces OH⁻ from water
- 23.** Any element which has a low oxidation number, will be used as
 (1) a reducing agent
 (2) an oxidizing agent
 (3) Oxidizing and reducing agent both
 (4) Neither oxidizing agent nor reducing agent
- 24.** The intermediate species involved in nitration and sulfonation is
 (1) NO₂ and SO₃ (2) NO₂⁻ and SO₂
 (3) NO⁺ and SO₂ (4) NO₂⁺ and SO₃
- 25.** Which is the strongest base in the following ?
 (1) NH₄OH (2) NaOH
 (3) Mg (4) Cu(OH)₂
- 26.** A compound 'X' reacts with potassium iodide solution to give yellow precipitate. On heating X, reddish brown gas is observed. Compound X is:
 (1) PbCl₂ (2) Pb(NO₃)₂
 (3) PbI₂ (4) PbSO₄
- 27.** The number of molecules in 22 g of carbon-dioxide is:
 (1) 1.51 × 10²³ molecules
 (2) 3.0115 × 10²³ molecules
 (3) 12.046 × 10²³ molecules
 (4) none of these
- 28.** In a flowering plant, cross pollination is promoted due to one of the following reasons
 (1) Both pistil and stamens mature at the same time.
 (2) Height of the pistil and stamens are the same.
 (3) Flowers are unisexual.
 (4) None of the above

- 29.** Development of plants is normally influenced by
 (1) Quality of light
 (2) Quality and Quantity of light
 (3) Quality and duration of light
 (4) Quality, Quantity and duration of light
- 30.** A number of gases are produced during smoking. One of them reduces the oxygen carrying capacity of the blood.
 (1) Carbon monoxide (2) Carbon di-oxide
 (3) Nitrogen (4) Methane
- 31.** When one consumes contaminated water containing germs & microorganisms, it causes one of the following diseases
 (1) Diphtheria (2) Tuberculosis
 (3) Diarrhoea (4) Plague
- 32.** In one of the following processes, mitosis does not play an important role
 (1) Asexual reproduction
 (2) Repair of damaged tissues
 (3) Formation of gametes
 (4) Growth of cells
- 33.** A boy jumps into cold water of a swimming pool and due to cold his body temperature goes down. His muscles, blood vessels and nervous system work together to restore his body temperature. It is known as
 (1) Metabolism (2) Reflex action
 (3) Homeostasis (4) Cold bite
- 34.** Which one is not a part of Neuron/Nerve cell?
 (1) Cyton
 (2) Dendrites
 (3) Haversian Canal
 (4) Axon and myelin sheath
- 35.** What is the primary function of stomach in a human being ?
 (1) Production of digestive juices
 (2) Transfer of nutrients from digested food
 (3) Break down of food due to muscle movement and enzymes
 (4) Absorption of nutrition
- 36.** In Photosynthesis, atmospheric carbon dioxide is converted to carbohydrate through the process of
 (1) Oxidation (2) Reduction
 (3) Polymerization (4) Photo-oxidation
- 37.** Accumulation of nonbiodegradable pesticides in different trophic levels is known as
 (1) Bioamplification (2) Bioaccumulation
 (3) Biomagnification (4) All of these
- 38.** 'Goiter' disease is less prevalent in people living in coastal areas. This is because
 (1) They bathe in the sea
 (2) Respire sea air
 (3) Drink sea water
 (4) Eat sea food
- 39.** On seeing good food, our mouth waters. This fluid is actually
 (1) Water (2) Digestive juice
 (3) Enzyme (4) None of these
- 40.** Which of the options given below would not work in the following sentence?
 In order for the body to absorb and use _____ these must be broken down by hydrolysis into _____.
 (1) polysaccharides, monosaccharides
 (2) amino acids, proteins
 (3) fats, glycerol and fatty acids
 (4) disaccharides, monosaccharides
- 41.** If $\sin\theta_1 + \sin\theta_2 + \sin\theta_3 = 3$ then $\cos\theta_1 + \cos\theta_2 + \cos\theta_3 = \dots\dots\dots$
 (1) -1 (2) 0 (3) 1 (4) 2
- 42.** $\tan 7^\circ \cdot \tan 23^\circ \cdot \tan 60^\circ \cdot \tan 67^\circ \cdot \tan 83^\circ = \dots\dots\dots$
 (1) 1 (2) $\sqrt{3}$
 (3) $\frac{1}{\sqrt{3}}$ (4) None of these
- 43.** Two dice are thrown simultaneously. The probability that the sum of numbers appearing on them is 10 is
 (1) $\frac{5}{36}$ (2) $\frac{5}{18}$ (3) $\frac{1}{12}$ (4) $\frac{1}{9}$
- 44.** Three unbiased coins are tossed together. The probability of getting at least two tails is
 (1) $\frac{3}{8}$ (2) $\frac{1}{2}$ (3) $\frac{5}{8}$ (4) $\frac{3}{4}$
- 45.** Which of the following is correct for the data 1, 0, 4, 2, 3, 5, 5, 6, 8, 10, 11 ?
 (1) mean = mode = median
 (2) mean = 5
 (3) mean = mode
 (4) mode = median

46. The mean of n numbers is 'a'. If first number is increased by 1, second number by 2 and so on, then the new mean is
- (1) $a + \frac{n+1}{2}$ (2) $a + \frac{n}{2}$
- (3) $a + n$ (4) $a + \frac{n-1}{2}$
47. The mean of 100 numbers is 49. It was later discovered that three numbers taken as 40, 20, 50 were actually 60, 70, 80 respectively. The correct mean is
- (1) 48 (2) 82.5 (3) 50 (4) 41.5
48. Point P (5, -3) is one of the two points of trisection of the line segment joining the points A (7, -2) and B (1, -5). If point P is nearer to point A, find the co-ordinates of the other point of trisection.
- (1) (-4,3) (2) (3,-4)
- (3) (-4,-4) (4) None of these
49. A natural number, when increased by 12, becomes equal to 160 times its reciprocal. Find the number.
- (1) 4 (2) 8
- (3) 0.8 (4) None of these
50. If the equations $x^2 + 2x + 3\gamma = 0$ and $2x^2 + 3x + 5\gamma = 0$ have a non-zero common root, then $\gamma = \dots\dots\dots$
- (1) -1 (2) 1 (3) 3 (4) None
51. The equation formed by decreasing each root of $ax^2 + bx + c = 0$ by 1 is $2x^2 + 8x + 2 = 0$ then
- (1) $a = -b$ (2) $b = -c$
- (3) $c = -a$ (4) $b = a + c$
52. For what value of k are the roots of the equation $3x^2 - 2kx + k = 0$ in the ratio 3 : 1 ?
- (1) 0, 4 (2) 0, 1 (3) 4, 4 (4) 1, 4
53. The mid-point of line segment joining (3, 4) and (k, 7) is (x, y) where $2x + 2y + 1 = 0$, then $k = \dots\dots\dots$
- (1) -15 (2) -5 (3) 0 (4) 15
54. If AD is perpendicular to BC in an equilateral ΔABC , then
- (1) $AD^2 = 2DC^2$ (2) $AD^2 = 3DC^2$
- (3) $AD^2 = 4DC^2$ (4) $2AD^2 = 3DC^2$
55. In a ΔABC , $\angle A = 90^\circ$ and $AB = AC$. The orthocentre of the triangle is
- (1) inside the triangle
- (2) on AB
- (3) outside the triangle
- (4) at A
56. If the areas of three adjacent faces of a cuboid are x, y, z respectively, then the volume of the cuboid is,
- (1) xyz (2) $2xyz$
- (3) \sqrt{xyz} (4) $3\sqrt{xyz}$
57. In a rectangle, the difference between the sum of the adjacent sides and the diagonal is half of the length of the longer side. The ratio of shorter to the longer side is
- (1) $\sqrt{3} : \sqrt{2}$ (2) $1 : \sqrt{3}$
- (3) 2 : 5 (4) 3 : 4
58. A bag contains 8 red balls and some blue balls. If the probability of drawing a blue ball is half of the probability of drawing a red ball, the number of blue balls in the bag is
- (1) 2 (2) 3 (3) 4 (4) 6
59. $\frac{3}{4} + \frac{5}{36} + \frac{7}{144} + \dots\dots + \frac{17}{5184} + \frac{19}{8100} = \dots\dots\dots$
- (1) 0.95 (2) 0.98
- (3) 0.99 (4) 1
60. If $-1 \leq x \leq 2$ and $1 \leq y \leq 3$, the least possible value of $2y - 3x$ is
- (1) 0 (2) -3 (3) -4 (4) -5
61. Who wrote, "Our language, religion, manners and habits are identical. We are proud of all those political, scientific and intellectual traditions of ours which have glorified the history of Europe But we have neither a national flag, nor a political name...?"
- (1) Frederick List (2) Joseph Mazzini
- (3) G. Garibaldi (4) Bismarck
62. The Balkans, which was a serious source of nationalist tension in Europe after 1871, was a region comprising of:
- (1) Romania, Germany, Poland, Bulgaria
- (2) Romania, Prussia, Greece, Croatia and Serbia
- (3) Serbia, Austria, Bulgaria, Slovakia and Poland
- (4) Serbia, Bulgaria, Greece, Croatia, Romania

- 63.** Who did not play a leading role in the Bolshevik Revolution of 1917?
 (1) Kerensky (2) Lenin
 (3) Trotsky (4) Stalin
- 64.** To overthrow French overlordship, Ho Chi Minh established the Republic of Vietnam in Indo-China in
 (1) 1939 (2) 1944 (3) 1945 (4) 1946
- 65.** The Non-Cooperation Movement Resolution was moved by
 (1) Chittaranjan Das
 (2) Mahatma Gandhi
 (3) Motilal Nehru
 (4) Madan Mohan Malviya
- 66.** Consider the following statements :
 (1) Annie Besant was the first woman President of the Indian National Congress
 (2) The Historic Lucknow Session of the Congress in 1916 was presided by Madan Mohan Malviya
 (3) Mahatma Gandhi presided over the annual session of Congress only once at Belgium in 1924.
 Which of the statements given below is/are correct ?
 (1) 1,2 and 3 (2) 2 and 3 only
 (3) 1 and 3 only (4) Only 1
- 67.** Match the following statements of Column A with Column B.
Column A :
 (I) Ambedkar established The Depressed Classes Association.
 (II) Gandhiji began The Civil Disobedience Movement
 (III) Gandhiji suspended The Civil Disobedience Movement
 (IV) Congress adopted the demand for 'Purna Swaraj'
Column B :
 (A) December 1929 (B) August 1930
 (C) March 1930 (4) March 1931
 Choose the correct option
 (1) (I) - (C), (II) - (D), (III) - (B), (IV) - (A)
 (2) (I) - (B), (II) - (C), (III) - (D), (IV) - (A)
 (3) (I) - (C), (II) - (A), (III) - (B), (IV) - (D)
 (4) (I) - (D), (II) - (C), (III) - (B), (IV) - (A)
- 68.** The first cotton mill in Bombay was established in 1853 by
 (1) Jamshedji Tata (2) Kawasji Nanabhoy
 (3) G.D.Birla (4) Hirachand
- 69.** The World Trade Organization was founded in 1995 at
 (1) Rome (2) Geneva
 (3) Tokyo (4) Brussels
- 70.** Mirat ul Akhbar was edited by
 (1) Sir Syed Ahmed
 (2) Raja Ram Mohan Roy
 (3) Abul Kalam Azad
 (4) Harish Chandra Mukherjee
- 71.** Which one of the following planets belongs to the inner planet group as well as to the superior planets group of the Solar System ?
 (1) Jupiter (2) Earth (3) Venus (4) Mars
- 72.** Read the following statements :
 (A) Monsoon Asia is one of the most thickly populated areas of the world.
 (B) Monsoon Asia is an area of only subsistence farming.
 Which one of the following is correct ?
 (1) A is true, B is false
 (2) B is true, A is false
 (3) Both A and B are true
 (4) Both A and B are false
- 73.** Gondwana rocks are found in :
 (A) Narmada Valley (B) Son Valley
 (C) Krishna Valley (D) Damodar Valley
 Now select the correct answer :
 (1) A, B and C are correct
 (2) C, A and D are correct
 (3) A, B and D are correct
 (4) B, C and D are correct
- 74.** What percentage of geographical area of Jharkhand is covered by forest -
 (1) 20% (2) 40% (3) 30% (4) 35%
- 75.** Which of the following is the oldest structure of India?
 (1) Mt. Everest
 (2) Aravali Hills
 (3) Chota Nagpur Plateau
 (4) Shivalik Range

- 76.** Which state of India is most developed in cotton textile?
 (1) Gujrat (2) Maharashtra
 (3) Tamil Nadu (4) Uttar Pradesh
- 77.** Ankleshwar is famous for the production of which mineral :
 (1) Coal (2) Petroleum
 (3) Mica (4) Manganese
- 78.** Which of the following is the largest wheat producing state in India?
 (1) Rajasthan (2) Bihar
 (3) Uttar Pradesh (4) Punjab
- 79.** Which state of India has the least population?
 (1) Himachal Pradesh (2) Arunachal Pradesh
 (3) Sikkim (4) Goa
- 80.** Sandalwood tree is most typical of which of the following forest type :
 (1) Monsoon forest (2) Evergreen forest
 (3) Mangrove forest (4) Mountainous forest
- 81.** The first session of the Indian National Congress was held at
 (1) Bombay (2) Calcutta
 (3) Nagpur (4) Delhi
- 82.** Which statement is not correct ?
 (1) India is a republic
 (2) India is republic because it does not have hereditary head of the State.
 (3) It is republic because it has a lengthy constitution.
 (4) It is republic because it belongs to all the Indians.
- 83.** Who among the following was the permanent Chairman of the Constituent Assembly ?
 (1) Dr. Rajendra Prasad
 (2) Pandit Jawaharlal Nehru
 (3) Sardar Patel
 (4) B. R. Ambedkar
- 84.** Which of the following pairs is correctly matched ?
 (1) Fundamental Rights - Political Horoscope of India
 (2) Directive Principles of State Policy-Justiciable
 (3) Fundamental Duties - Educative Value
 (4) Preamble - Unamendable
- 85.** The Directive Principles of State Policy were given precedence over the Fundamental Rights by :
 (1) 39th Amendment (2) 41st Amendment
 (3) 42nd Amendment (4) 43rd Amendment
- 86.** The modern democracy is known as
 (1) Direct Democracy
 (2) People' s Democracy
 (3) Representative Democracy
 (4) Socialist Democracy
- 87.** Political Parties are
 (1) Essential for Democracy
 (2) Not Essential for Democracy
 (3) Essential for Totalitarian Government
 (4) Not essential either for Democracy or Totalitarian Government
- 88.** Wolf Tone revolted against the British
 (1) Scotland (2) Ireland
 (3) Greenland (4) Iceland
- 89.** The term "Bismark of Italy" was used for
 (1) Mazzini (2) Cavour
 (3) Garibaldi (4) Victor Emmanit
- 90.** Who said "A caste is a closed class"?
 (1) Majumdar and Madan
 (2) Morris Jones
 (3) Myron Wcincr
 (4) Cooley
- 91.** Which one of the following is correct:
 (1) In 2011 India's HDI Rank in the World was 97
 (2) In 2011 India's HDI Rank in the World was 134
 (3) In 2011 India's HDI Rank in the World was 149
 (4) In 2011 India's HDI Rank in the World was 145
- 92.** Animal husbandry comes under
 (1) Tertiary Sector (2) Primary Sector
 (3) Secondary Sector (4) Joint Sector
- 93.** In India 14 commercial banks were nationalised in:
 (1) 1951 (2) 1991 (3) 1969 (4) 2011
- 94.** WTO was established in the year :
 (1) 1945 (2) 1955 (3) 1995 (4) 1991

- 95.** In India Consumer Protection Act was enacted in:
(1) 1951 (2) 1986 (3) 1991 (4) 2001
- 96.** Which Hindi novel by Premchand tells the story of Indian peasantry through the characters of Hori and his wife Dhania?
(1) Godan
(2) Gaban
(3) Sevasadan
(4) Rangbhoomi
- 97.** Which of the following countries was the first where novel took firm root?
(1) England and France
(2) Germany and Japan
(3) U.S.A and Russia
(4) India and China
- 98.** Who among the following published the "Tom Jones" in six volumes?
(1) Richardson
(2) Charles Dickens
(3) Henry Fielding
(4) None of the above
- 99.** In which of the following language was the novel Yamuna Prayatan written?
(1) Bengali (2) Oriya
(3) Hindi (4) Marathi
- 100.** Whose writings in Hindi created a novel reading public?
(1) Premchand
(2) Shrinivas Das
(3) Devki Nandan Khatri
(4) Bhartendu Harishchandra

SPACE FOR ROUGH WORK