

PART-II
SCHOLASTIC APTITUDE TEST II
(b) OTHER SUBJECTS

(A) SCIENCE DISCIPLINE

Physics

1. A metallic conductor carries 800 mA current from left to right. It means that
 - (1) 5×10^{18} protons are flowing per sec from left to right
 - (2) 5×10^{18} electrons are flowing per sec from right to left
 - (3) 8×10^2 electrons are flowing per sec from right to left.
 - (4) 5×10^{18} protons are flowing per sec from left to right & 5×10^{18} electrons are flowing per sec from right to left.
2. Ohm's law ($I = V/R$) is applicable for
 - (1) All types of conductors of electricity
 - (2) Only metallic conductors of electricity
 - (3) Only semi conductors of electricity
 - (4) Only from metallic and ionic conductors of electricity
3. A copper wire has a resistance of 8 ohm. The wire is stretched to double of its original length. Its new resistance will be
 - (1) 8 ohm
 - (2) 16 ohm
 - (3) 32 ohm
 - (4) 64 ohm
4. A beam of light traveling in air enters into a liquid. Its speed reduces by 30%. The refractive index of liquid with respect to air is
 - (1) $10/7$
 - (2) $10/3$
 - (3) $7/5$
 - (4) $4/3$
5. The refractive index of a liquid is $5/3$. A ray of light traveling in this liquid falls at interface of liquid & air. At what angle of incidence should it fall on liquid air interface so that it suffers total internal reflection?
 - (1) 53°
 - (2) 24°
 - (3) 15°
 - (4) 17°
6. A beam of light in air is incident upon the smooth plane surface of a piece of flint glass making an angle of 30° with its plane. If the reflected beam and refracted beam are perpendicular to each other, what is the index of refraction of flint glass with respect to air ?
 - (1) $1/2$
 - (2) $\frac{\sqrt{3}}{2}$
 - (3) $\frac{2}{\sqrt{3}}$
 - (4) $\sqrt{3}$
7. The image created by a converging lens is projected on a screen that is 60 cm away from the lens. If the height of the image is one fourth the height of the object, what is focal length of the lens?
 - (1) 36 cm
 - (2) 45 cm
 - (3) 80 cm
 - (4) 48 cm
8. An electric bulb is marked (60 W, 120 V). What is the resistance of filament of bulb?
 - (1) 2Ω
 - (2) 30Ω
 - (3) 240Ω
 - (4) 720Ω
9. A battery whose emf is 40 V has an internal resistance 5 Q. If this battery is connected across a 15 Q resistor (R) what will be voltage drop across resistor (R)?
 - (1) 10 V
 - (2) 30 V
 - (3) 40 V
 - (4) 50 V
10. Three identical bulbs B₁, B₂ & B₃ are connected in parallel across terminals of an ideal source of emf. What will happen if bulb B₂ burns out ?
 - (1) Bulb B₁ & B₃ will also burn out
 - (2) Bulb B₁ and B₃ will give less
 - (3) Bulb B₁ & B₂ will give more light
 - (4) Bulb B₁ & B₁ will give same light

11. A bar magnet is cut into two equal parts by cutting it very slowly perpendicular to its length. Which of the following is true ?
 (1) Each part will be a bar magnet having two equal and opposite poles same as original magnet.
 (2) One part will have a N-Pole and other part will have a S-Pole of same strength as original magnet.
 (3) Each part will be a bar magnet having two equal and opposite poles of strength half of original magnet.
 (4) None of two parts will be a magnet.
12. Which of the following cannot form a real image for a divergent beam of light ?
 (1) Plane mirror only. (2) Convex mirror only
 (3) Concave lens only (4) All of above
13. Three resistors of resistance $\frac{1}{60}\Omega$, $\frac{1}{30}\Omega$ & $\frac{1}{20}\Omega$ are joined in parallel. The equivalent resistance of combination will be
 (1) $\frac{1}{110}\Omega$ (2) $\frac{1}{10}\Omega$ (3) 110Ω (4) 10Ω

Chemistry

14. The spectrum of He^+ is expected to be similar to that of
 (1) H (2) Li (3) Na (4) He
15. Which of the following oxoacids of phosphorus is used in the preparation of Graham's salt?
 (1) H_3PO_3 (2) $\text{H}_4\text{P}_2\text{O}_7$ (3) HPO_3 (4) $\text{H}_2\text{P}_2\text{O}_5$
16. In the reaction
 $\text{Cr}_2\text{O}_7^{2-} + 14\text{H}^+ + 6\text{e}^- \rightarrow 2\text{Cr}^{3+} + 7\text{H}_2\text{O}$
 The equivalent weight of $\text{K}_2\text{Cr}_2\text{O}_7$ in acidic medium will be
 (1) $M/3$ (2) $M/9$ (3) $M/12$ (4) $M/6$
17. For the reaction $\text{A}_2 + 2\text{B} \rightarrow 2\text{AB}$, the following data were collected.
- | [A] | [B] | Rate ($\text{mol L}^{-1} \text{s}^{-1}$) |
|-----|------|--|
| 0.1 | 0.01 | 1.5×10^{-3} |
| 0.1 | 0.04 | 6.0×10^{-3} |
| 0.2 | 0.01 | 3.0×10^{-3} |
- The total order of the reaction is
 (1) 1 (2) 2 (3) 3 (4) 4
18. The correct relationship between the free-energy change in a reaction and the corresponding equilibrium constant K_c is
 (1) $\Delta G = RT \ln K_c$ (2) $-\Delta G = RT \ln K_c$
 (3) $\Delta G^\circ = RT \ln K_p$ (4) $-\Delta G^\circ = RT \ln K_p$
19. The general expression for the solubility product of A_xB_y will be
 (1) $K_{sp} = x^2y^2S^{xy}$ (2) $K_{sp} = (xy)^{x+y} S^{x+y}$ (3) $K_{sp} = (x^x y^y) S^{x+y}$ (4) $K_{sp} = x^y y^x S^{x+y}$
20. In a galvanic cell
 (1) Electrical energy is converted into chemical energy
 (2) Chemical energy is converted into electrical energy
 (3) The anode is the negative and the cathode is the positive
 (4) Redox reaction does not occur automatically

21. The chemical formula of borax is
 (1) $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$ (2) $\text{Na}_2\text{B}_4\text{O}_7 \cdot 18\text{H}_2\text{O}$
 (3) $\text{Na}_2\text{B}_4\text{O}_7 \cdot 4\text{H}_2\text{O}$ (4) $\text{Na}_2\text{B}_4\text{O}_7 \cdot 6\text{H}_2\text{O}$
22. Match the List- I and List- II and select the correct answer using the code given below the Lists.
 List I
 Conversion
 I. NaCl to Na
 II. NaCl to Na_2SO_4
 III. NaCl to NaOH
 IV. Na_2SO_3 to $\text{Na}_2\text{S}_2\text{O}_3$
 List II
 Name of Process
 (i) Castner-Kellner Process (ii) Spring Reaction
 (iii) Down Process (iv) H_2SO_4
 Which of the following is correctly matched?
 (1) I-iii, II- iv, III-i, IV-ii (2) I-iv, II-ii, III-i, IV-iii
 (3) I-i, II-ii, III-iii, IV-iv (4) I-ii, II-iii, III-iv, IV-i
23. NaOH reacts with CO at 200°C and 5 atmospheric pressure to give
 (1) $\text{CH}_3\text{CH}_2\text{COONa}$ (2) $\text{C}_6\text{H}_5\text{COONa}$
 (3) HCOONa (4) CH_3COONa
24. The general electronic configuration of the transition elements is
 (1) $(n-1)d^{10}(n+1)s^2$ (2) $(n-1)d^{1-10}(n+1)s^{1-2}$
 (3) $(n-1)d^{1-10}np^6ns^2$ (4) $(n-1)d^{1-10}ns^{0-2}$
25. Which of the following is the strongest acid?
 (1) F_2CHCOOH (2) ClCH_2COOH
 (3) FCH_2COOH (4) Cl_2CHCOOH
26. Nitrobenzene can be prepared by heating benzene with a mixture, concentrated HNO_3 and concentrated H_2SO_4 . In this nitrating mixture, HNO_3 acts as
 (1) A base (2) An acid (3) A catalyst (4) A reducing agent

Biology

27. Match the items in column I with those in column II and Select the correct choice
- | Column I | Column II |
|---------------------|------------------|
| A Autotrophic | I Kidney |
| B Conducting tissue | II Protein |
| C Excretory organ | III Green Plants |
| D Pepsin | IV Xylem |
- (1) A-III, B- IV, C-II, D-I (2) A-III, B- IV, C-II, D- II
 (3) A-IV, B-II, C-I, D- III (4) A- II, B- IV, C- III, D-I
28. Which one of the following is insectivorous plant?
 (1) Drosera (2) Nepenthes (3) Both (1) and (2) (4) Hydrilla
29. In human blood group AB
 (1) Antibodies are present (2) Antibodies are absent
 (3) Antibody a is present (4) Antibody b is present

30. Honey is made by
(1) Male honey bee (2) Queen honey bee
(3) Worker honey bee (4) Both (1) and (2)
31. In Mendel's Monohybrid cross, the F_2 phenotypic ratio is
(1) 3 : 1 (2) 1 : 2 : 1 (3) 2 : 1 (4) 1 : 3 : 1
32. Sexually transmitted disease is
(1) Measles (2) T.B (3) Gonorrhoea (4) Typhoid
33. In ecosystem the flow of energy is
(1) Unidirectional (2) Bidirectional (3) Multidirectional (4) All of these
34. Regulation of Spermatogenesis is done by
(1) Oestrogen (2) L.H (3) Androgen (4) None of these
35. Which of the following is renewable resource?
(1) Solar energy (2) Air (3) Petroleum (4) Water
36. Which Vitamin is present in Golden nee?
(1) Vitamin A (2) Vitamin B₁₂ (3) Vitamin C (4) Vitamin D
37. Aril is edible in which of the following fruit?
(1) Annona (2) Myristica (3) Litchi (4) All of these
38. Semen is frozen in
(1) Liquid nitrogen (2) Refrigerator (3) Ice (4) All of these
39. Diploid is
(1) Ovum (2) Polleu (3) Both (1) and (2) (4) Zygote
40. T- lymphocytes originate from
(1) Bone marrow (2) Stomach (3) Thymus (4) Liver

(B) Mathematics

41. The wheel of a motor car makes 1000 revolutions in moving 440 m. The diameter of the wheel is
(1) 0.44 m (2) 0.14 m (3) 0.24 m (4) 0.34 m
42. The value of $\frac{(0.03)^2 - (0.01)^2}{0.03 - 0.01}$ is
(1) 0.02 (2) 0.004 (3) 0.4 (4) 0.04
43. If the sum of two numbers is 22 and sum of their squares is 404 then the product of the number is
(1) 40 (2) 44 (3) 80 (4) 88
44. How many seconds will a 500m long train take to cross a man, walking with a speed of 3 km/h, in the direction of the moving train if the speed of the train is 63 km/h?
(1) 25 sec (2) 30 sec (3) 40 sec (4) 45 sec
45. The area (in sq. cm) of the largest circle that can be drawn inside a square of side 28 cm is
(1) 17248 (2) 784 (3) 8624 (4) 616
46. If the cost price of 12 pens is equal to the selling price of 8 pens, the gain percent is
(1) $33\frac{1}{3}\%$ (2) $66\frac{2}{3}\%$ (3) 25% (4) 50%
47. What is the least number which when divided by 42, 72 and 84 leaves the remainder 25, 55 and 67 respectively ?
(1) 521 (2) 512 (3) 504 (4) 487
48. The missing term in the sequence 0, 3, 8, 15, 24, ..., 48 is
(1) 35 (2) 30 (3) 36 (4) 39
49. The compound interest on Rupees 1000 in 2 year at 4% per annum, the interest being compounded half yearly is
(1) Rs 6360.80 (2) Rs 824.32 (3) Rs 912.86 (4) Rs 828.82
50. If 70% of the students in a school are boys and the number of girls be 504, the number of boys is
(1) 1176 (2) 1008 (3) 1208 (4) 3024
51. The mess charges for 35 students for 24 days is Rs 6300. In how many days will the mess charge be Rs 3375 for 25 students
(1) 12 (2) 15 (3) 18 (4) 21
52. If the volume of two cubes are in the ratio 27:64, then the ratio of their total surface area is
(1) 27 : 64 (2) 3 : 4 (3) 9 : 16 (4) 3 : 8
53. If $1^3 + 2^3 + \dots + 10^3 = 3025$ then $4 + 32 + 108 + \dots + 4000$ is equal to
(1) 1200 (2) 12100 (3) 12200 (4) 12400
54. What is the square root of $9 + 2\sqrt{14}$?
(1) $1 + 2\sqrt{2}$ (2) $\sqrt{3} + \sqrt{6}$ (3) $\sqrt{2} + \sqrt{7}$ (4) $\sqrt{2} + \sqrt{5}$
55. 7 Oranges are bought for Rs 3 .At what rate per hundred must be sold to gain 33%
(1) Rs 56 (2) Rs 60 (3) Rs 58 (4) Rs 57
56. $\sqrt[3]{1 - \frac{127}{343}}$ is equal to
(1) $\frac{5}{9}$ (2) $1 - \frac{1}{7}$ (3) $\frac{4}{7}$ (4) $1 - \frac{2}{7}$

57. Two numbers are in the ratio 3: 4 . If 5 is subtracted from each .then the ratio will be 2:3 . What is the smallest number ?
(1) 15 (2) 18 (3) 20 (4) 24
58. The present age difference between father and son is 14 years. The ratio of their age will be 4:3 after 11 years. How old is son now?
(1) 25 yrs (2) 31 yrs (3) 30 yrs (4) 28 yrs
59. If the side of a square is increased by 25% then, how much percent does its area gets increased
(1) 56.25% (2) 50% (3) 12.5% (4) 156.25%
60. What is the value of $2.\overline{6} - 1.\overline{9}$?
(1) $0.\overline{6}$ (2) $0.\overline{9}$ (3) $0.\overline{7}$ (4) 0.7

(C) SOCIAL STUDIES AND HUMANITIES

History

61. Brazil was discovered in –
(1) 1500 (2) 1505
(3) 1510 (4) 1515
62. Magna Carta or The Great Charter was signed in
(1) 1210 (2) 1215
(3) 1220 (4) 1225
63. Habeas Corpus Act was passed in?
(1) 1679 (2) 1683
(3) 1691 (4) 1697
64. "Boston Tea Party" incident happened in ?
(1) 1770 (2) 1771
(3) 1772 (4) 1773
65. America was discovered in?
(1) 1491 (2) 1492
(3) 1493 (4) 1494
66. Who is known as "Father of History" ?
(1) Mark Antony (2) Nero
(3) Herodotus (4) Homer
67. What is the name of autobiography of Adolf Hitler ?
(1) First Attack (2) Mein Kampf
(3) My Spirit (4) Ray of Hope
68. The Parliament of Great Britain was formed in the year?
(1) 1705 (2) 1706
(3) 1707 (4) 1708
69. The first news paper in the world was started by?
(1) Japan (2) China
(3) USA (4) India
70. In which year, first census was conducted in India?
(1) 1884 (2) 1872
(3) 1881 (4) 1856
71. Who was elected the President of Indian National Congress in the Surat Session 1907 famous for Surat Split?
(1) Dr. Rash Bihari Ghosh (2) Lala Lajpat Rai
(3) Dadabhai Naoroji (4) Pherozeshah Mehta
72. Who among the following was the first Indian Woman President to chair the Indian National Congress at Kanpur session of 1925 ?
(1) Sarojini Naidu (2) Annie Beasant
(3) Nellie Sengupta (4) Indira Gandhi

Geography

73. Cotton is an important agro-based industrial raw material. Which row of states is most important in the production of this raw material?
(1) Gujarat, Uttar Pradesh, Bihar (2) Maharashtra, Tamilnadu, Punjab
(3) Tamilnadu, Kerala, Goa (4) Karnataka, Odisha, Jharkhand
74. Which row of states has been important for the production of pulses in India?
(1) Kerala, Bihar, Jharkhand
(2) Bihar, Uttar Pradesh, West Bengal
(3) Rajasthan, Madhya Pradesh, Uttar Pradesh
(4) Uttar Pradesh, Assam, Orissa
75. Select the correct statement:
(1) Damodar Valley Multipurpose River Valley Project has increased the flood frequency in West Bengal
(2) River Damodar directly goes to the Bay of Bengal
(3) Damodar Valley multipurpose river valley project benefits the states of West Bengal and Jharkhand
(4) River Subernrekha is a tributary of river Damodar
76. Assertion (A) : Most of the coal of India are reserved in Chattisgarh, Jharkhand and Odisha.
Reason (R) : Coal reserves occur in sedimentary rocks.
(1) Both A and R are true and R explains A
(2) Both A and R are true but R does not explain A
(3) A is true but R is false
(4) A is false but R is true
77. Nanda Devi biosphere is situated in the state of :
(1) Nagaland (2) Arunachal Pradesh
(3) Tripura (4) Uttarakhand
78. Barh Super Thermal Power station is situated in the state of :
(1) Bihar (2) Andhra Pradesh
(3) Rajasthan (4) Punjab
79. India is the largest producer of :
(1) Wheat (2) Maize
(3) Rice (4) Milk
80. Sugar Mills of Bihar are principally situated in the districts of:
(1) Patna and Nalanda
(2) Munger and Gaya
(3) West Champaran and East Champaran
(4) Katihar and Purnea
81. Which row of the given table is correct?
- | | Major Port | State |
|-----|------------|-------------|
| (1) | Kandala | Maharashtra |
| (2) | Mangalore | Karnataka |
| (3) | Marrnagao | Kerala |
| (4) | Haldia | Odisha |
82. Which state of India is famous for Jute textile industry?
(1) Tripura (2) Assam
(3) Bihar (4) West Bengal

83. Select the correct statement :
- (1) Contour lines connect the spots of equal height
 - (2) Contour lines help in measuring the height of mountain peak
 - (3) Contour lines help in understanding the Ocean Currents
 - (4) Contour lines help in understanding the nature of rock structure.
84. Which places were first connected by railways in India?
- (1) Kolkata to Patna
 - (2) Chennai to Rameshwaram
 - (3) Mumbai to Thane
 - (4) Mumbai to Pune

Civics

85. In the reference of Right to Information 2005, which of the following institution and its highest information official is not correctly matched?
- Institution
- (1) Supreme Court
 - (2) Union Public Service Commission
 - (3) Lok Sabha
 - (4) State's High Court
- Competent Official
- (1) The Chief Justice of India
 - (2) The Chairman, Union Public Service Commission
 - (3) The Speaker, Lok Sabha
 - (4) The Chief Justice of High Court
86. To which article of the Indian constitution is the verdict of S. R. Bommai versus Union of India related?
- (1) Article – 2
 - (2) Article – 32
 - (3) Article – 353
 - (4) Article – 356
87. In the constitution of India the provision related to which of following is not clearly mentioned?
- (1) Inter State Council
 - (2) All India Service
 - (3) The Contingency Fund of India
 - (4) National Development Council
88. Which of the following does recognize the political parties in India?
- (1) The Speaker of the Lok Sabha
 - (2) The President
 - (3) The Election Commission
 - (4) The Supreme Court
89. What is a pressure group?
- (1) A group struggling for power
 - (2) A group struggling for fulfilling its own interest
 - (3) Political Party
 - (4) Private group
90. Of the following what are the main functions of a political party
- (i) Role of Opposition
 - (ii) To Contest election for getting power
 - (iii) Development of political awareness among the people
 - (iv) formation of the government
- (1) (i) and (ii) (2) (ii) and (iii) (3) (ii) (4) All of the above
91. What is the objective of Panchayati Raj System?
- (i) Decentralization of Power
 - (ii) Local participation in the government system
 - (iii) Undemocratization of system
 - (iv) Unitary government
- (1) (i) and(iii) (2) (1) and (ii) (3) (iii) and (iv) (4) All the above

92. Which of the following factors does affect the voting behavior of voters in India?
(i) Caste (ii) Religion (iii) Constitution (iv) Region
(1) (i) and(iv) (2) (i) and (ii) (3) (i), (ii) and (iv) (4) All the above

Economics

93. Which of the following is correct?
a. I.S.I. standard is used for standardization of agricultural products
b. Right to information bill was passed in India in November 2005
c. Human protection act was passed in India in 1993
d. Consumer protection act was passed in 1986
(1) All of the above (2) Only option a and option b
(3) Option a, b and c (4) Option c and d
94. The Clay used by a potter is which type of capital
(1) Fixed capital (2) Working capital
(3) Human capital (4) All of the above
95. Which of the following is not considered as a social indication of poverty
(1) Less number of means of transport (2) Illiteracy Level
(3) Lack of access to health care (4) Lack of job opportunity
96. The best index to measure Economic development is :-
(1) State Income (2) Per capita income
(3) Political stability (4) None of the above
97. When did the cooperatives begin in India?
(1) 1901 (2) 1904
(3) 1912 (4) 1915
98. Which sector contributes the highest in Bihar's income
(1) Agricultural sector (2) Industrial sector
(3) Service sector (4) None of the above
99. A commodity which is used to denote anything which is widely accepted in payment of goods or in discharge of other business obligation" who gave this definition?
(1) Marshal (2) Crowther
(3) Coulborn (4) Robertson
100. Removing barrier or restrictions set by the government is called
(1) Liberalisation (2) Investment
(3) Favourable trade (4) Free trade