

SET-4



CODE : P

AVIRAL TALENT SEARCH EXAM

ATSE - JUNIOR - 2015

Science, Mathematics & Mental Ability
For Class - VII Studying Students

Time : 2 Hr.

M. M. : 320

Roll No :

Date :

Name of Student : _____

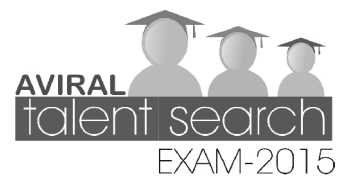
Father's Name : _____

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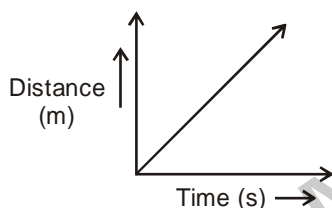
INSTRUCTIONS

1. This question paper contains 80 Questions and Total Max. Marks is 320. Attempt all questions.
2. This question paper contains three Section namely, **Section-1** : Science (Physics, Chemistry & Biology), **Section-2** : Mathematics and **Section-3** : Mental Ability.
3. **Section-1** has 45 questions (15 each from Physics, Chemistry & Biology). **Section-2** has 20 questions and **Section-3** has 15 questions.
4. For each correct answer 4 marks will be awarded and for wrong answer 1 mark will be deducted. No marks will be given for unattempted question.
5. Use only **blue/black pen (avoid gel pen)** for darkening the bubble.
6. The Answer sheet will be checked through computer hence, the answer of the question must be marked by shading the circles against the question by dark **blue/black pen**.
7. Write your name and Roll number carefully on the answer sheet as well as the questions paper.

SECTION - 1 [SCIENCE]

PHYSICS

1. Choose the odd-one out in the following
 (1) Velocity (2) Mass
 (3) Area (4) Distance
2. The distance -time graph of an object is shown in figures. The motion is



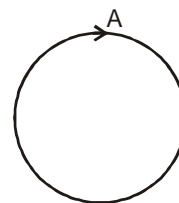
- (1) Uniform motion (2) Non-uniform motion
 (3) Accelerated motion (4) None of these
3. Match the items in column-A with column-B.

<u>Column-A</u>	<u>Column-B</u>
(i) Periodic motion	(a) Swinging of arms of a person
(ii) Oscillatory motion	(b) A bullet fired from rifle
(iii) Translatory motion	(c) Revolution of moon around earth
(iv) Non-periodic motion	(d) Simple pendulum

 The correct match is :
 (1) (i)-d, (ii)-c, (iii)-b, (iv)-a

- (2) (i)-a, (ii)-c, (iii)-b, (iv)-d
 (3) (i)-c, (ii)-d, (iii)-b, (iv)-a
 (4) (i)-a, (ii)-b, (iii)-c, (iv)-d

4. The motion of a screw being tightened by a drilling machine is an example of
 (1) rotatory motion (2) translatory motion
 (3) both (1) and (2) (4) None of these
5. The heat from sun is an example of
 (1) Conduction (2) Convection
 (3) Radiation (4) All of the above
6. Which of the following is an example of uniformly accelerated motion?
 (1) A freely falling body
 (2) an elevator moving upwards
 (3) motion of a spinning wheel
 (4) none of these
7. The displacement calculated in the figure (radius = 0.5 m)



- (1) 10π m (2) 10 m
 (3) zero (4) none of these

For Rough Work Only

CHEMISTRY

8. When water is cooled from 4°C to 0°C, it
 (1) contracts (2) expands
 (3) remains same (4) cannot say anything
9. Which of the following statement/statements are true in context of heat?
 A. The temperature of a body increases, when heat is absorbed by it.
 B. Heat and temperature are same
 C. The amount of heat energy depends on the amount of matter present in a body
 (1) A & B (2) only C
 (3) A & C (4) all are correct
10. Lighting of an electric bulb is the conversion of
 (1) electric energy into light energy
 (2) electric energy into chemical energy
 (3) light energy into electric energy
 (4) electric energy into sound energy
11. Which of the material/materials are bad conductors of electricity ?
 A. Distilled water B. Sea water
 C. Rubber D. Acidified water
 (1) only C (2) A, B & C
 (3) B & D (4) A & C
12. The metal which is used for preventing the other metal by depositing a layer of it under the effect of electric current is
 (1) Chromium (2) Tin
 (3) Zinc (4) all of the above
13. The body temperature of an elephant is 113°F. Its temperature in kelvin scale is
 (1) 31 K (2) 318 K
 (3) 321 K (4) 324 K
14. The physical quantity which we can obtain from a velocity-time graph is
 (1) speed (2) acceleration
 (3) change in position (4) can't say anything
15. A particle is moved 5m towards east and then moved 8m towards west. The total displacement is
 (1) 3 m towards west (2) 3m towards east
 (3) 8m (4) none of these
16. Which of the following is not a chemical change ?
 (1) Photosynthesis
 (2) Breaking a glass tumbler
 (3) Burning of wood
 (4) Rusting of Iron
17. Wasp sting can be treated with
 (1) baking soda (2) vinegar
 (3) washing soda (4) milk of magnesia
18. A solution reacts with zinc granules to give a gas which burns with a 'pop' sound. The solution contains.
 (1) Mg(OH)₂ (2) Na₂CO₃
 (3) NaCl (4) HCl
19. Which of the following is used for dissolution of gold ?
 (1) Hydrochloric (2) Aqua Regia
 (3) Sulphuric acid (4) Nitric acid
20. Which of the following salts does not contain water of crystallization ?
 (1) Blue vitriol (2) Baking soda
 (3) Washing soda (4) Gypsum
21. To protect tooth decay, we are advised to brush our teeth regularly. The nature of the tooth paste commonly used is :
 (1) acidic (2) neutral
 (3) basic (4) corrosive
22. When magnesium is burnt in air, it produces magnesium oxide that appear to be like :
 (1) wood ash (2) chalk powder
 (3) table salt (4) powdered sugar
23. Sodium sulphate and barium chloride solutions are mixed in a test tube. A white precipitate is formed. What type of change is this ?
 (1) Physical change
 (2) Physical and chemical
 (3) Chemical change
 (4) None of these
24. The cloth made from cotton and synthetic fibres known as
 (1) Rayon (2) Terylene
 (3) Terrycot (4) Polyester

For Rough Work Only

25. Which of the following will be suitable for coating dress materials of fire men ?
 (1) Nylon (2) Polyester
 (3) Melamine (4) Acrylic
26. We should not wear polyester while working in kitchen because
 (1) it produces heat and we feel hot
 (2) it feels uncomfortable, as it does not allow air to pass through
 (3) its fabric melts and sticks to the body in case of fire
 (4) it is not hygienic to wear synthetic fibre cloths
27. Which of the following are incorrectly matched?

Material	Natural source	Artificial source
(i) Thermoplastic	✓	✗
(ii) Jute	✓	✗
(iii) Cellulose	✗	✓
(iv) Polyethylene	✓	✗

- (1) (i) and (ii) (2) (i), (ii) and (iii)
 (3) (ii), (iii) and (iv) (4) All of these
28. Chile salt petre and nitre are respectively
 (1) Sodium nitrate and potassium nitrate
 (2) Potassium nitrate and sodium nitrate
 (3) Ferrous sulphate and copper sulphate
 (4) Copper sulphate and ferrous sulphate
29. Monobasic weak acid among the following is
 (1) Carbonic acid (2) Oxalic acid
 (3) Acetic acid (4) Nitric acid
30. The gaseous products that are formed when gun powder is subjected to heating are dissolved in water. Identify the products formed on dissolution
 (1) H_2CO_3, HNO_3 (2) H_2SO_3, H_2SO_4
 (3) H_2SO_4, HNO_2 (4) H_2SO_3, H_2CO_3

BIOLOGY

31. How many molecules of ATP are gained during anaerobic respiration of one molecule of glucose?
 (1) 36 (2) 2
 (3) 38 (4) 4

32. Select the correct pathway taken by food in the alimentary canal
 (1) Mouth→stomach→Oesophagus→Duodenum→Small intestine→Large intestine
 (2) Mouth→Oesophagus→stomach→Duodenum→Large intestine→Small intestine
 (3) Mouth→Oesophagus→stomach→Duodenum→Small intestine→Large intestine
 (4) Mouth→stomach→Duodenum→Oesophagus→Small intestine→Large intestine

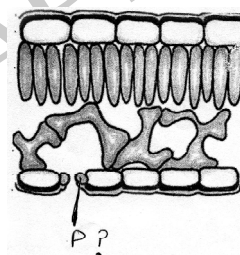
33. Match the columns and select the correct option from the codes given below

Column-I

Column-II

- A. Premolars (i) Tearing
 B. Canines (ii) Biting
 C. Incisors (iii) Grinding
 (1) A-(i), B-(ii), C-(iii) (2) A-(iii), B-(ii), C-(i)
 (3) A-(iii), B-(i), C-(ii) (4) A-(ii), B(i), C-(iii)

34. Recognize the type of cells marked as 'P' in the diagram



- (1) Epidermal cells (2) Mesophyll cells
 (3) Parenchymatous cells
 (4) Guard cells

35. Sometimes when we do heavy exercise, an aerobic respiration takes place in our muscle cells. What is produced during this process ?
 (1) Alcohol & Lactic acid
 (2) Alcohol & CO_2
 (3) Lactic acid & CO_2
 (4) Lactic acid only

36. Components of the blood that are responsible for the transportation of oxygen to different parts of the body are
 (1) Platelets (2) RBCs
 (3) WBCs (4) Plasma

For Rough Work Only

37. Breathing is a process that
 (i) Provides O_2 to the body
 (ii) Breakdown food to release energy
 (iii) Helps the body to get rid of CO_2
 (iv) Produced water in the cells
 Which of the following gives the correct combination of functions of breathing ?
 (1) (i) and (ii) (2) (ii) and (iii)
 (3) (i) and (iii) (4) (ii) and (iv)
38. When a small amount of garden soil is put into a glass jar containing water, stirred and allowed to stand for two hours, the layers from top to bottom would be
 (1) debris, water, sand and clay
 (2) humus, water, clay and sand
 (3) debris, clay, gravel and sand
 (4) humus, clay, gravel and sand
39. The essential components of human circulatory system is
 (1) heart and blood
 (2) blood and blood vessels
 (3) heart and blood vessels
 (4) heart, blood and blood vessels
40. Which of the following are not related to each other?
 (1) Amylase - starch (2) Proteases - Proteins
 (3) Sucrose - Peptides (4) Lipases - Fats

41. Choose the odd one out
 (1) Nasal cavity (2) Nostrils
 (3) Pharynx (4) Trachea
42. The small finger like projections present over small intestine for increasing absorptive surface area are called
 (1) Villi (2) Cilia
 (3) Flagella (4) None of these
43. The process of ingestion of food by the organism given below is called



- (1) Osmosis (2) Phagocytosis
 (3) Pseudopodia (4) Photosynthesis
44. In the cardiac cycle, diastole is
 (1) the number of heart beats per minute
 (2) the relaxation period after contraction of the heart
 (3) the forceful pumping action of the heart
 (4) the contraction period after relaxation of the heart
45. The percolation rate of water is least in
 (1) Sandy soil (2) Loamy soil
 (3) Clayey soil (4) None of these

SECTION - 2 [MATHEMATICS]

46. Which of the following is true
 (1) $\sqrt{a} + \sqrt{b} = \sqrt{a+b}$ (2) $\sqrt{a} \cdot \sqrt{b} = \sqrt{ab}$
 (3) $\sqrt{a} - \sqrt{b} = \sqrt{a-b}$ (4) None of these
47. If $x = \sqrt{3}$, $y = \sqrt{27}$, $z = \sqrt{243}$, then which of the following is/are rational numbers
 (1) xy (2) xz
 (3) yz (4) All of these
48. Raj went to a market to buy a radio. But he had an amount which is equal to $\frac{15}{28}$ of the cost of the radio. If the cost of radio is ₹ 560, then find the amount with him.

- (1) ₹ 280 (2) ₹ 300
 (3) ₹ 240 (4) ₹ 320
49. If $a^2 - b^2 = 36$ and $a + b = 4$, then $(a - b)^2 =$
 (1) 36 (2) 9
 (3) 81 (4) 144
50. If $A = (3x + 6)$ and $B = 2x^2 + 3x + 4$, then the degree of AB is
 (1) 4 (2) 3
 (3) 2 (4) 1
51. What is the quotient when $(x^3 + 8)$ is divided by $(x^2 - 2x + 4)$
 (1) $(x - 2)$ (2) $(x + 2)$
 (3) $(x + 1)$ (4) $(x - 1)$

For Rough Work Only

52. A fraction whose denominator is a number other than 10, 100, 1000.....
 (1) Unlike fractions (2) Equivalent fraction
 (3) Complex fraction (4) Vulgar fraction

53. Arrange the fraction $\frac{13}{18}, \frac{8}{15}, \frac{17}{24}$ and $\frac{7}{12}$ in descending order :

(1) $\frac{17}{24}, \frac{8}{15}, \frac{13}{18}, \frac{7}{12}$ (2) $\frac{8}{15}, \frac{7}{12}, \frac{17}{24}, \frac{13}{18}$

(3) $\frac{13}{18}, \frac{17}{24}, \frac{7}{12}, \frac{8}{15}$ (4) $\frac{17}{24}, \frac{13}{18}, \frac{7}{12}, \frac{8}{15}$

54. $9.75 \div 0.039$ is

(1) 0.25 (2) 250
 (3) 2.5 (4) 25.0

55. 9.3% of 500 - 4.8% of 250 - 2.5% of 240

(1) 285 (2) 0.285
 (3) 2.85 (4) 28.5

56. When 275 is decreased by 8%, the new number is

(1) 253 (2) 297
 (3) 22 (4) 240

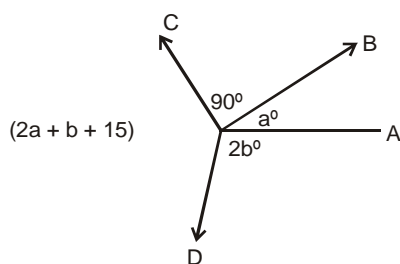
57. x and y form a linear pair of two adjacent angles. If $y = 3x - 12^\circ$, then values of x and y respectively are

(1) 132, 48 (2) 50, 130
 (3) 48, 132 (4) 40, 140

58. If two angles have a common vertex, a common arm and their other arms lie on either side of the common arm then, the two angles are said to be _____

(1) corresponding angles (2) linear pair
 (3) angles at a point (4) adjacent angles

59. In the given figure $2b - a = 65$ & $\angle BOC = 90^\circ$, $\angle COD = ?$



(1) 255° (2) 135°
 (3) 50° (4) 100°

60. If 343 is the third proportional of a & b where $a : b = 1 : 7$, then find the value of $a + b$

(1) 14 (2) 24
 (3) 56 (4) 63

61. Find the third proportional to 4.8 and 6.4

(1) $8\frac{8}{15}$ (2) $8\frac{7}{15}$

(3) $7\frac{7}{15}$ (4) $8\frac{9}{15}$

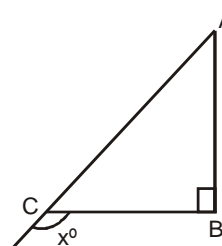
62. The present age of Mohan and Sohan are in the ratio 5 : 6. The sum of their present ages is 44 in years. Find the difference of their ages (in years)

(1) 4 (b) 5
 (3) 8 (4) 2

63. In a right Δ , one of the acute angles is four times the other. Find its measure

(1) 68° (2) 84°
 (3) 80° (4) 72°

64. In the figure $BC = AB$ then find x°



(1) 45° (2) 90°
 (3) 120° (4) 135°

65. Which of the following is not the set of measures of the sides of a triangle

(1) 7cm, 3cm, 5cm (2) 8cm, 12cm, 18cm
 (3) 5cm, 6cm, 14cm (4) 5cm, 12cm, 13cm

For Rough Work Only

SECTION - 3 [MENTAL ABILITY]

66. If '+' means '-', '-' means 'x', '÷' means '+' and 'x' means '÷'; then

$25 \times 5 \div 8 - 4 + 7 = ?$

- (1) 44
- (2) 37
- (3) 7
- (4) 30

67. Choose the odd one out

- (1) 25
- (2) 81
- (3) 100
- (4) 110

68. Choose the odd pair out

- (1) Father - Mother
- (2) Son - Daughter
- (3) Grandfather - Grand daughter
- (4) Uncle - Aunt

69. Painter : Brush :: Tailor : ?

- (1) Gun
- (2) Sword
- (3) Axe
- (4) Needle

70. Which one does not belong to the group?

- (1) Pink
- (2) Red
- (3) Green
- (4) Yellow

71. Choose the correct figure from A, B, C, D in place of the given figure

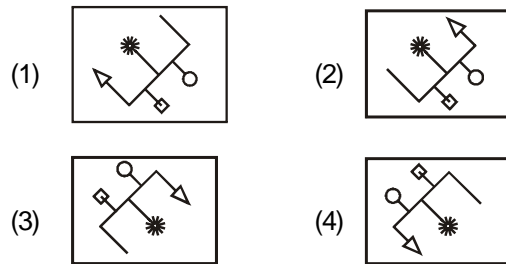
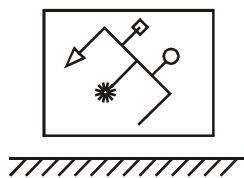


- (1)
- (2)
- (3)
- (4)

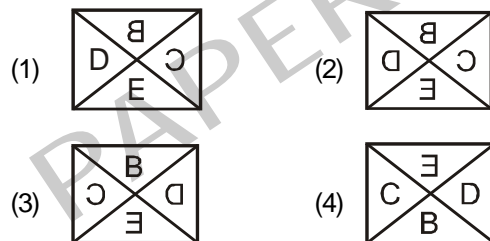
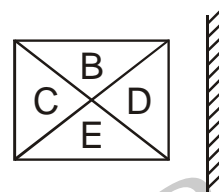
72. 'Arjun Award' is related to 'Sports' in the same way as 'Oscar Award' is related to

- (1) Politics
- (2) Films
- (3) Literature
- (4) Medical

73. Choose the correct water image of the given figure.



74. Choose the correct mirror image of the given figure.

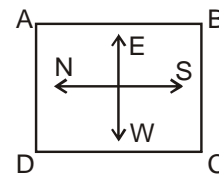


75. If 'M' mean '÷', 'R' means '+', 'T' means '-' and 'K' means 'x', then

$20 R 16 K 5 M 10 T 8 = ?$

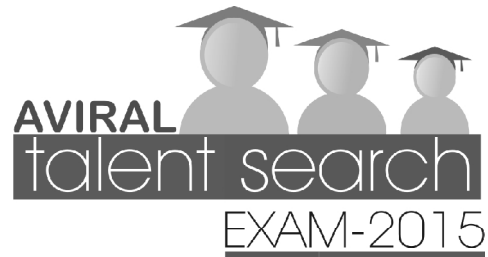
- (1) 36
- (2) 20
- (3) 36.5
- (4) 12

76. Four persons standing at the four corners of a square piece as shown in figure. B starts crossing the field diagonally. After walking half the distance, he turns right, walks some distance and turn left. Which direction is B facing now?



- (1) North - East
- (2) South - East
- (3) North - West
- (4) North

For Rough Work Only



ANSWER KEY

<u>SECTION-1</u>	<u>SECTION-2</u>	<u>SECTION-3</u>
<u>(Physics)</u>	<u>(Mathematics)</u>	<u>(Mental Ability)</u>
1. (1)	24. (3)	46. (2)
2. (1)	25. (3)	47. (4)
3. (3)	26. (3)	48. (2)
4. (3)	27. (3)	49. (3)
5. (3)	28. (1)	50. (2)
6. (1)	29. (3)	51. (2)
7. (3)	30. (1)	52. (4)
8. (2)	<u>(Biology)</u>	53. (3)
9. (3)	31. (2)	54. (2)
10. (1)	32. (3)	55. (4)
11. (4)	33. (3)	56. (1)
12. (4)	34. (4)	57. (3)
13. (2)	35. (4)	58. (4)
14. (2)	36. (2)	59. (2)
15. (2)	37. (3)	60. (3)
	38. (1)	61. (1)
<u>(Chem)</u>	39. (4)	62. (1)
16. (2)	40. (3)	63. (4)
17. (2)	41. (3)	64. (4)
18. (4)	42. (1)	65. (3)
19. (2)	43. (2)	
20. (2)	44. (2)	
21. (3)	45. (3)	
22. (1)		
23. (3)		
		66. (4)
		67. (4)
		68. (3)
		69. (4)
		70. (1)
		71. (1)
		72. (2)
		73. (1)
		74. (2)
		75. (2)
		76. ()
		77. (4)
		78. (3)
		79. (2)
		80. (3)