NARAYANA GROUP OF SCHOOLS

Max. Time: 120 min **Max Marks: 320**

Instructions:

i. The test paper consists of **80** multiple choice questions numbered from **1 to 80,** each question followed by four alternatives 1, 2, 3 and 4.
ii. Mental Ability 1 to 20, Mathematics 21 to 35, Physics 36 to 50 and Chemistry 51 to 65, Biology 66 to 80.
iii. Each question has only one correct option.
iv. Each correct answer carries **+4 Marks**.
v. No negative marking for wrong answer.

MAT (Q.NO.1 TO 20)

1. **5760, 960, ?, 48, 16, 8**

1) 120 2) 160 3) 192 4) 240

2. **9, 27, 31, 155, 161, 1127,?**

1) 316 2) 1135 3) 1288 4) 2254

3. **3, 15,?, 63, 99, 143**

1) 27 2) 35 3) 45 4) 56

4. **2, 7, 27, 107, 427?**

1) 1262 2) 1707 3) 4027 4) 4207

5. **In the series,**

6 4 1 2 2 8 7 4 2 1 5 3 8 6 2 1 7 1 4 1 3 2 8 6

how many pairs of successive numbers have a difference of 2 each?

1) Four 2) Five 3) Six 4) Seven

6. **In the following series, how many such odd numbers are there which are divisible by 3 or 5, then followed by odd numbers, and then also followed by even numbers?**

12, 19, 21, 3, 25, 18, 35, 20, 22, 21, 45, 46, 47, 48, 9, 50, 52, 54, 55, 56

1) Zero 2) One 3) Two 4) Three

7. **In a row of a boys facing the North, A is sixteenth from the left end and C is sixteenth from the right end. B, who is fourth to the right of A, is fifth to the left of C in the row. How Many boys are there in the row?**

1) 39 2) 40 3) 41 4) 42

Directions (Questions 8-11): A code language has been used to write the words in small letters in English in Column II as from letters in Column I. Words in Column II do not appear in the same order as letters in Column I. Decode the language and choose the correct code for the word given in each question, from amongst the alternatives

Column I	Column II
(1) TAPE	(A) m̃oīj
(2) COUP	(B) lhhpok
(3) TIE	(C) nls
(4) ROTATE	(D) nhpk
(5) SAY	(E) nkpl
(6) TREAT	(F) msr
(7) YEAR	(G) khlph
(8) SIP	(H) hrp
(9) TYRE	(I) pmlh

8. SOUP

1) osmj 2) sojm 3) osjm 4) joms

9. TRACE

1) hiklp 2) hlkip 3) hklip 4) piklh

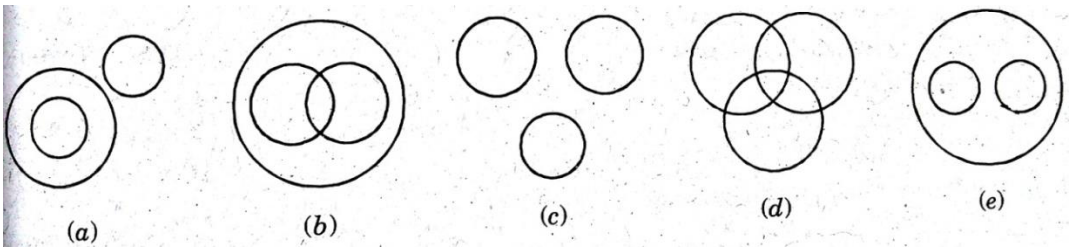
10. CREATE

1) ljhkhn 2) jknlhn 3) jlphip 4) ikplhp

11. CURE

1) ijkp 2) pikj 3)ikpj 4) kipj

Directions (Q.No-12 to 13) : Each of the following questions below contains three elements. These three elements may or not have some linkage. Each group of the elements may fit into one of the diagrams at (a), (b), (c), (d) and (e). You have to indicate groups of elements in each questions fit into which of the diagram given below. The letter indicating the diagram is the answer.



12. Diseases, Leprosy, Scurvy

1) a 2) b 3) c 4) e

13. Doctors, Lawyers, Professionals

1) a 2) e 3) c 4) d

Directions (Q.No-14-16) : In each of the following questions, four numbers have been given out of which three are alike in some manner, while the fourth one if different. Choose out the odd one.

14. **a) 7359** **b) 1593** **c) 9175** **d) 3781**

1) a 2) b

3) c 4) d

15. **a) 372164** **b) 376821** **c) 318951** **d) 319446**

1) a 2) b

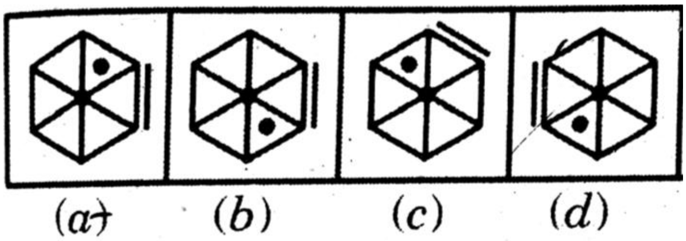
3) c 4) d

16. **a) 140** **b) 240** **c) 360** **d) 480**

1) a 2) b

3) c 4) d

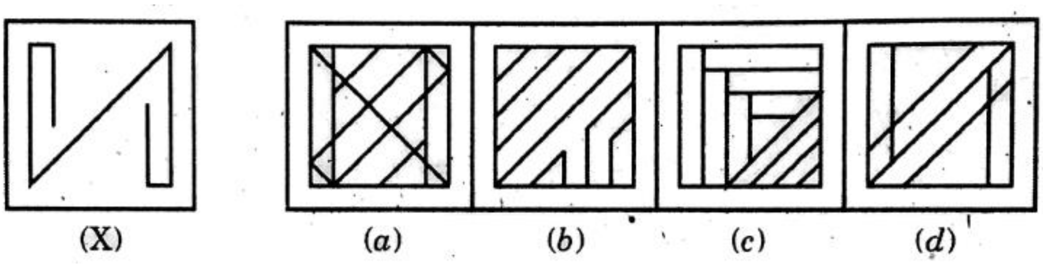
17. **Figure Classification**



1) a 2) b 3) c 4) d

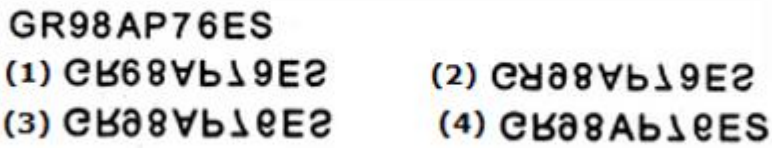
Directions (Q. No: 18): Embedded Figure

18.



1) a 2) b 3) c 4) d

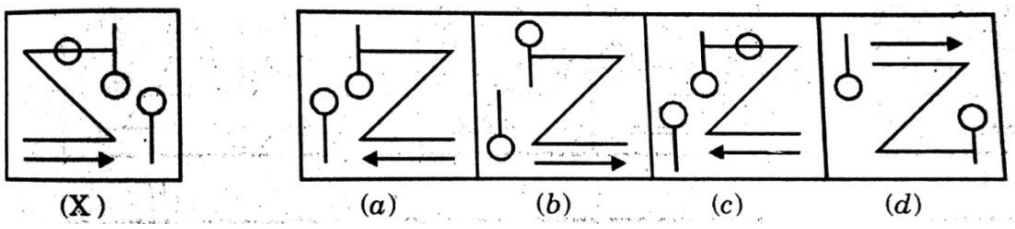
19. **Choose the alternative which is closely resembles the water-image of the given combination.**



1) 1 2) 2

3) 3 4) 4

20. Directions : Mirror image



1) a 2) b 3) c 4) d

MATHEMATICS (Q.NO.21 TO 35)

21. The largest negative integer is

1) -1 2) -100 3) -10 4) -2

22. The sum of two integers is 10. If one of them is negative, then other has to be

1) negative 2) positive

3) may be positive or negative 4) 0

23. $\left[\left\{\left(\frac{-1}{2}\right)^2\right\}^{-2}\right]^{-1}$ **is equal to**

1) $\frac{1}{16}$ 2) 16 3) $\frac{-1}{16}$ 4) -16

24. The standard form of $\frac{13}{6}\times\frac{-18}{91}$ **is**

1) $\frac{-3}{7}$ 2) $\frac{-3}{-7}$ 3) $\frac{13}{7}$ 4) $\frac{18}{2}$

25. Which of the following is correct ?

1) $\frac{2}{3}<\frac{3}{5}<\frac{11}{15}$ 2) $\frac{3}{5}<\frac{2}{3}<\frac{11}{15}$ 3) $\frac{11}{15}<\frac{3}{5}<\frac{2}{3}$ 4) $\frac{3}{5}<\frac{11}{15}<\frac{2}{3}$

26. The product of the coefficients of terms in $\frac{-4}{3}ab^2+\frac{1}{4}bc^2+3ca^2$ is

1) 1 2) $\frac{1}{2}$ 3) -1 4) 3

27. GCD of $a=p\times p\times q\times r\times s$ **and** $b=p\times q\times q\times s$ **is**

1) $p\times q$ 2) $p\times r\times s$ 3) $p\times q\times s$ 4) $p\times r$

28. Two complementary angles are in the ratio 2 : 3. The measure of the larger angle is

1) 60^0 2) 54^0 3) 66^0 4) 48^0

29. $\angle A$ **is an obtuse angle. The measure of** $\angle A$ **and twice its supplementary differ by** 30^0. **Then,** $\angle A$ **can be**

1) 150^0 2) 110^0 3) 140^0 4) 120^0

30. **If** $\frac{1}{a}:\frac{1}{b}:\frac{1}{c}=3:4:5,$ **then a : b : c**

1) 5 : 4 : 3 2) 20 : 15 : 12 3) 9 : 12 : 15 4) 12 : 15 : 20

31. **If** $\frac{x}{2}+\frac{x}{3}=5,$ **then x=**

1) 12 2) -12 3) 6 4) 8

32. **On tossing a coin, the outcomes is**

1) only head 2) only tail

3)neither head nor tail 4) either head or tail

33. **Circumference of a circle is always**

1) more than three times of its diameter

2) three times of its diameter

3)less than three times of its diameter

4) three times of its radius

34. **A copper wire when bent in the form of a square encloses an area of** $484cm^2$ **. If the same wire is bent in the form of a circle. Then the area enclosed by it is**

1) $615cm^2$ 2) $616cm^2$ 3) $626cm^2$ 4) $818cm^2$

35. **If** $\Delta ABC \cong \Delta XYZ$ **and** $AB = XY = 10cm$ **and** $\angle A = \angle X = 40^0$. **If** $\angle B = 45^0$, **then** $\angle Z$ **is equal to**

1) 55^0 2) 40^0 3) 95^0 4) 85^0

PHYSICS (Q.NO.36 TO 50)

36. **A plotting compass is placed near the south pole of a bar magnet. The pointer of plotting compass will:**

1) Point away from the South Pole

2) Point parallel to the South Pole

3) Point towards the South Pole

4) Point at right angles to the South Pole

37. **A strong bar magnet is placed vertically above a horizontal wooden board. The magnetic lines of force will be:**

1) Only in horizontal plane around the magnet
2) Only in vertical plane around the magnet
3) In horizontal as well as in vertical planes around the magnet
4) In all the planes around the magnet

38. The position and size of image formed when an object of size 1cm is placed at a distance of 15 cm from a concave mirror of focal length 10 cm is

1) - 30 cm, real and inverted
2) - 20 cm virtual and inverted
3) - 40 cm, real and inverted
4) - 25 cm virtual and enlarged

39. Which of the following mirror has magnification +1

1) Plane
2) convex
3) Concave
4) All of these

40. When light travels from denser medium to rarer medium

1) Refracted ray bends towards normal
2) Refracted ray bends away from normal
3) Ray undeviated from path.
4) We cannot identified the ray.

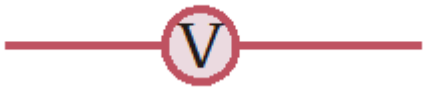
41. A body is said to have 1 coulomb charge, if it has excess or deficit of :

1) 6.25×10^{6} electrons
2) 6.25×10^{16} electrons
3) 6.25×10^{18} electrons
4) 6.25×10^{9} electrons

42. The symbol for electric cell is

1) 

2) 

3) 

4) 

43. A fire alarm usually detects smoke in case of fire. Where such an alarm should be placed in a room?

1) Near the door
2) On the floor
3) On any wall
4) On the ceiling

44. Most hurricane and tropical storm deaths occur due to:

1) Lightning
2) Tornadoes
3) Severe Wind
4) Flooding

45. Two particles move along x-axis in the same direction with uniform velocities 8 m/s and 4 m/s. Initially the first particle is 21m to the left of the origin and the second one is 7m to the right of the origin. The two particles meet from the origin at a distance of

1) 35 m
2) 32 m
3) 28 m
4) 56 m

46. A car travels the first half of a distance between two places at a speed of 30 km/h and the second half of the distance at 50 km/h. The average speed of the car for the whole journey is _____

1) 42.5 km/h
2) 40.0 km/h
3) 37.5 km/h
4) 35.0 km/h

47. Acceleration is negative when

1) Velocity of a body increases with time

2) Velocity of a body decreases with time

3) Velocity of a body constant with time

4) Velocity of a body both increases and decreases with time

48. Two thermometers A and B have fundamental interval of 45° and 100°. The lower points of A and B are 0° and 50° respectively. What will be the reading of A when B reads 110°

1) 30° 2) 27° 3) 100° 4) 180°

49. Choose the correct option:

1) Two bodies of same substance having different masses may have same temperature but different amount of heat

2) Two bodies of same substance having different masses may have same amount of heat but Different temperature

3) Heat contents of a body do not decide the direction of heat flow from the body

4) All of these

50. In winter, clocks becomes

1) Slow 2) Fast 3) More accurate 4) Neither slow nor fast

CHEMISTRY (Q.NO.51 TO 65)

51. Gas evolved, when fuel is ignited

1) Oxygen 2) Nitrogen 3) Water vapour 4) Carbon dioxide

52. Ink filler work due to

1) Liquid pressure 2) Vapour pressure

3) Solid pressure 4) Atmospheric pressure

53 Which of the following is/are useful in photosynthesis

1) Carbon di oxide 2) Water

3) Sunlight 4) Carbon dioxide, Water, Sunlight

54. Water contain

1) Hydrogen, Sulphur 2) Oxygen, Nitrogen

3) Hydrogen, Oxygen 4) Chlorine, Hydrogen

55 The process of conversion of water vapour to water is called

1) Condensation 2) Evaporation

3) Sublimation 4) Melting

56. The ratio by mass of hydrogen and oxygen in water is

1) 1 : 3 2) 1 : 4

3) 1 : 2 4) 1 : 8

57. _____ fibre are uniform in thickness

1) natural 2) artificial 3) wool 4) Silks

58. The silk worm is

1) a caterpillar 2) a larva 3) both 1 & 2 4) neither 1 nor 2

59. _____ fibre are found to be twisted

1) Cotton 2) Woolen 3) Terylene 4) Rayon

60. Which of the following is organic acid

1) Lactic acid 2) Hydrochloric acid

3) Sulphuric acid 4) Nitric acid

61. Potassium oxide react with water to form

1) Sodium oxide 2) Sodium hydroxide

3) Potassium hydroxide 4) Sodium bicarbonate

62. The formula Zinc nitrate is

1) $Zn(NO_3)$ 2) $Zn(NO)_2$

3) $Zn(NO)_3$ 4) $Zn(NO_3)_2$

63. An example of periodic change:

1) Breaking of Glassware 2) Change of seasons

3) rusting of articles 4) melting of snow on the mountains

64. Which of the following is an example of chemical change?

1) Melting of ice 2) Cooking of food

3) Freezing of water to ice 4) Changing of water into steam by boiling

65. Artificial ripening of fruits is

1) Natural change 2) Undesirable change

3) Periodic change 4) Physical change

BIOLOGY (Q.NO.66 TO 80)

66. This is not a herbivore

1) rabbit 2) fox 3) elephant 4) cow

67. Animals that eat both plants and animals as food are called :

1) Omnivores 2) herbivores

3) autotrophs 4) carnivores

68. They use their beaks to pick up insects

1) parrots 2) hens 3) cranes 4) lizards

69. The gardens where farmers grow a single type of fruit plants is called

1) grove 2) orchard 3) plantation 4) forest

70. An aquatic plant is

1) Bogan Villia 2) Vallisnaria

3) Fern 4) Algae

71. A migrating bird which usually visits the Kolleru lake in Andhra Pradesh is

1) pelicans 2) pigeons 3) hawks 4) penguins

72. The habitat of a fox is

1) Forest 2) Marshes 3) highlands 4) Desert

73. The habitat of crow is

1) bottom of tree 2) branches of tree 3) bark of tree 4) middle of tree

74. The part that connects leaf lamina to the stem is

1) petiole 2) node 3) vein 4) mid rib

75. This is the skeleton of leaf :

1) venation 2) guard cells 3) root system 4) floral arrangement

76. Which of the following are considered as weather components

1) Temperature 2) Rainfall 3) Wind speed 4) All the above

77. Hydrometer is used to find

1) Rain fall 2) wing direction 3) Humidity 4) Temperature

78. The food synthesized by the plants is stored as_____

1) starch 2) carbohydrates 3) fats 4) proteins

79. One of the main nutrients required by plants to grow

1) zinc 2) boron 3) phosphorus 4) copper

80. The gas liberated in the process of photosynthesis :

1) nitrogen 2) chlorine 3) oxygen 4) hydrogen