NARAYANA GROUP OF SCHOOLS
40 YEARS OF EXCELLENCE

CLASS-IX	**AARAMBH**	**DATE: 04-10-19**
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. (a) Each correct answer carries +**4 Marks**.

(b) For each wrong answer **1 mark** will be **deducted.**

MAT (Q.NO.1 TO 20)

Directions (Questions 1-3): According to a code language, words in capital letters in Column I are written in small letters in Column II. The letters in Column II are jumbled up.

Column I	Column II
(1) CURSE	(A) opkif
(2) INCUR	(B) fbpoc
(3) TALLY	(C) ughvg
(4) CADET	(D) rkufh
(5) DRIP	(E) rptc
(6) TOIL	(F) jugc
(7) VARY	(G) vwoh

1.   DAIRY

1) cvohr   2) gkvbf   3) rctvo   4) whtou

2.   CIVIL

1) gfwcc   2) ghcww   3) ggwfc   4) gwffc

3.   TRIED

1) ukfhr   2) ubovc   3) ukhbp   4) ukorc

Directions (Q.No-4-7): A solid cube of each side 8 cm, has been painted red, blue and black on pairs of opposite faces. It is then cut into cubical blocks of each side 2 cm.

4.   How many cubes have no face painted?

1) 0   2) 4   3) 8   4) 12

5. **How many cubes have only one face painted?**

1) 8   2) 16   3) 24   4) 28

6. **How many cubes have only two faces painted?**

1) 8   2) 16   3) 20   4) 24

7. **How many cubes have three faces painted?**

1) 0   2) 4   3) 6   4) 8

Directions (Q.No-8 to 10): 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.
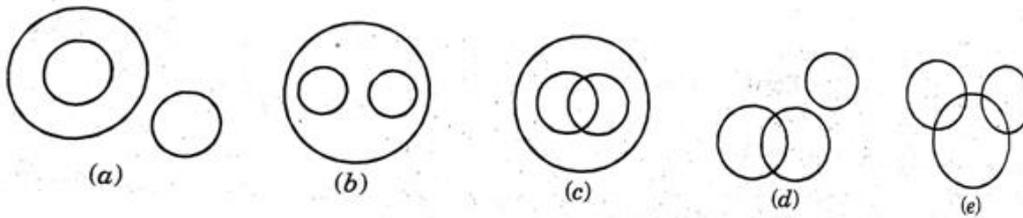
8. **Wheat, Grains, Maize**

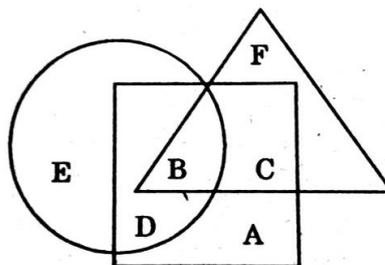1) a   2) b   3) c   4) e

9. **Protons, Electrons, Atoms**

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

10. **Paper, Stationary, Ink**
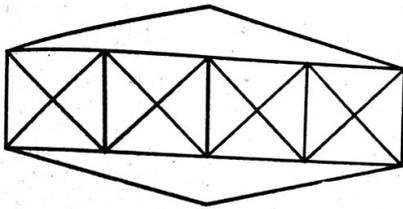
1) a   2) b   3) c   4) d

Directions (Q.No-11): In the following diagram, three classes of population are represented by three figures. The triangle represents the school teachers, the square represents the married persons and the circle represents the persons living in joint families.

11. Married persons living in joint families but not working as school teachers are represented by

1) C   2) F   3) D   4) A

12. Q1F, S2E, U6D, W21C, ?

1) Y44B   2) Y66B   3)Y88B   4)Z88B

13. If the following series is written in the reverse order, which number will

be fourth to the right of the seventh number from the left?

7, 3, 9, 7, 0, 3, 8, 4, 6, 2, 1, 0, 5, 11, 13

1) 0   2) 5   3) 9   4) 11

14. In a class of 35 students, Kunal is placed seventh from the bottom whereas Sonali is placed ninth from the top. Pulkit is placed exactly in between the two. What is Kunal's position from Pulkit?

1) 9   2) 10   3) 11   4) 13

15.

| 84 | |
| 14 | 12 |

| 81 | |
| 18 | 9 |

| 88 | |
| ? | 11 |

1) 16   2) 21   3) 61   4) 81

Directions (Q. No-16) : Read the following information carefully and

answer the question given below:

'P@Q' means 'P is the mother of Q';

'P$$Q$' means 'P is the husband of Q';

'P#Q' means 'P is the sister of Q';

'P*Q' means 'P is the son of Q';

16. Which of the following indicates the relationship R is daughter of T'?

1) $T@B\#F*R$ 2) $T@B\#R*F$

3) $R\#F*B\$T$ 4) None of these

Directions (Q.No-17) : Count the number of squares and triangles in the following figures
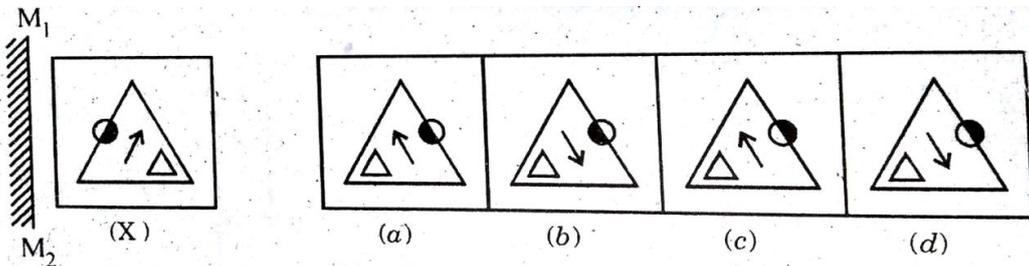
17.

1) 36 triangles, 7 squares   2) 38 triangles, 9 squares

3) 40 triangles, 7 squares   4) 42 triangles, 9 squares

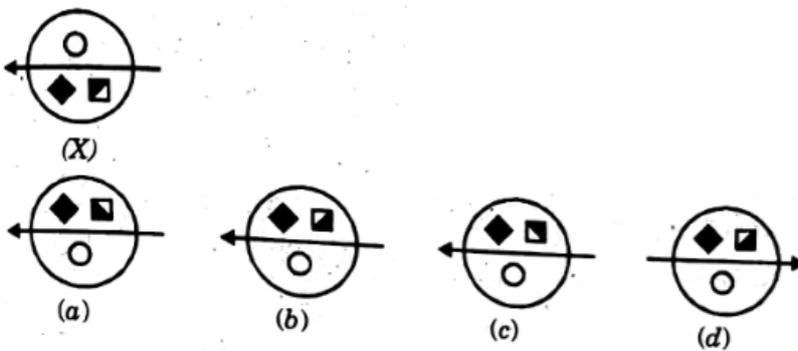**Directions (Questions No-18): Mirror image**

18.

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

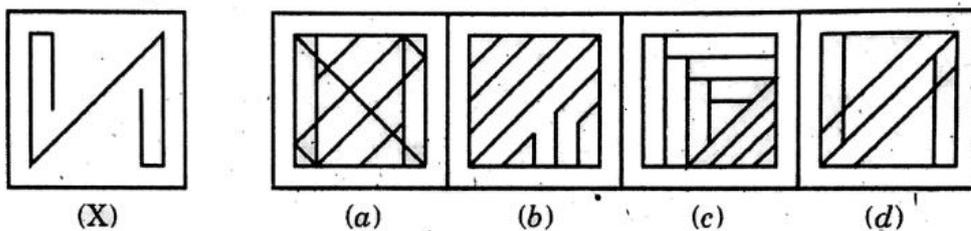**Directions (Questions No-19) : Water image**

19.

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

**Directions (Q. No: 20): Embedded Figure.**

20.

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

MATHEMATICS (Q.NO.21 TO 35)

21. If $a = 0.1039$, then the value of $\sqrt{4a^2 - 4a + 1} + 3a$ is:

1) 0.1039   2) 0.2078   3) 1.1039   4) 2.1039

22. $\sqrt[2]{\sqrt[3]{x \times 0.000001}} = 0.2$. Then x is

1) 8   2) 16   3) 32   4) 64

23. If $a + b + c = 0$, then what is the value of $(a+b-c)^3 + (c+a-b)^3 + (b+c-a)^3$?

1) $-8(a^3 + b^3 + c^3)$ 2) $a^3 + b^3 + c^3$ 3) $24abc$ 4) $-24abc$

24. If $\dfrac{4^{n+1} \cdot 2^n - 8^n}{2^{2n}} = \dfrac{3}{8}$, then n= _____

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

25. Factors of $x^4 + 5x^2 + 9$ are :

1) $(x^2 + 2x + 3)(x^2 + 3x + 3)$ 2) $(x^2 - x + 3)(x^2 - x - 3)$

3) $(x^2 - x - 3)(x^2 + x + 3)$ 4) $(x^2 - x + 3)(x^2 + x + 3)$

26. Given $\dfrac{(x^2 - 5x + 6)}{(x^2 - 7x + 12)} = \dfrac{(x^2 - x - 6)}{(x^2 + 7x + 10)}$, the value of x is :

1) 2.4   2) -2.0 3) 2.2   4) 2.3

27. The opposite pairs of sides of a square are increased by 40% and 30% respectively. The area of the resulting rectangle exceeds the area of the square by :

1) 42%   2) 62%   3) 82%   4) 72%

28. The LCM OF $x^2 - 10x + 16, x^2 - 9x + 14$ and $x^2 - 10x + 21$ is :

1) $(x-2)^2(x-3)(x-7)^2(x-8)$ 2) $(x-2)^2(x-3)(x-7)(x-8)$

3) $(x-2)(x-3)(x-7)^2(x-8)$ 4) $(x-2)(x-3)(x-7)(x-8)$

29. If the sides of a triangle are produced then sum of exterior angles $\lfloor DAB + \lfloor EBC + \lfloor FCA =$

1) 180° 2) 90° 3) 360° 4) 270°

30. The given figure BC is produced to D and $\lfloor BAC = 40^\circ$ and $\lfloor ABC = 70^\circ$ then value of $\angle ACD =$
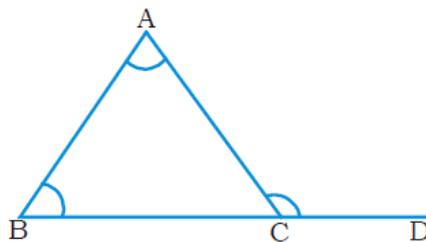
1) 25° 2) 110° 3) 130° 4) 95°

31. In the given figure of $\triangle ABC, \angle B = 80$ and $\angle C = 30$ BF and CF are the angular bisector of $\underline{|CBD}$ and $\underline{|BCE}$ respectively then $\underline{|BFC} =$

   1) 55° 2) 65° 3) 75° 4) 105°
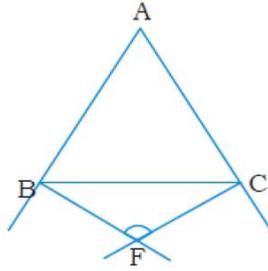
32. Two times a number is 100% increase in the number. If we take half the number what would be the decrease in percent?

    1) 0%   2) 25%   3) 50%   4) 100%

33. The average age of consisting doctors and lawyers is 40. If the doctors average age is 35 and the lawyers average age is 50, then the ratio of the number of doctors to the number of lawyers is

    1) 2 : 1   2) 1 : 1   3) 1 : 2   4) 3 : 1

34. ABCD is a rhombus AC, BD are diagonals intersect at O. If area of triangle OBC is 6sqcm, then the area of the rhombus ABCD is

    1) 24sq.cm   2) 25sq.cm   3) 19sq.cm   4) 20sq.cm

35. When N is divided by 4, the remainder is 3. What is the remainder when 2N is divided by 4.

    1) 2   2) 3   3) 4   4) 8

PHYSICS (Q.NO.36 TO 50)

36. The gravitational potential of two homogeneous spherical shells A and B of same surface density at their respective centres are in the ratio. If the two shells coalesce into single one such that surface density remains same, then the ratio of potential at an internal point of the new shell to shell A is equal to :

    1) 3 : 2   2) 4 : 3   3) 5 : 3   4) 5 : 6

37. What is the evidence that comets are the member of our solar system?

    1) Their properties of compositions   2) Their Shape and size

    3) Their shape of the orbit   4) Their structure of tails

38. Which part of human ear converts sound vibrations into electrical signals

    1) Hammer   2) Stirrup   3) Tympanic membrane   4) Cochlea

39. **What does the following S-t graph (distance-time) indicate?**
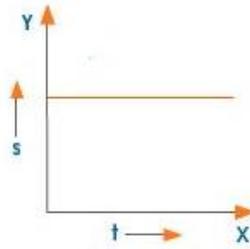
1) Uniform speed   2) body is at rest   3) non-uniform speed   4) variable speed

40. **In an elevator moving vertically up with an acceleration g, the force exerted on the floor by a passenger of mass M is**

1) Mg   2) $\dfrac{1}{2}Mg$ 3) 2 Mg   4) zero

41. **Sound waves have**

1) Amplitude only   2) Frequency and wavelength only

3) Amplitude, frequency and wavelength   4) Amplitude and wavelength only

42. **A falling object is pulled down by the earth. The earth is pulled up toward the object. Why doesn't the earth move?**

1) Only the earth has gravity

2) The Earth has a very large mass and a small acceleration

3) The Earth has a very small mass and a large acceleration

4) Air resistance gets in the way

43. **Which of the following part of the Sun is visible at the time of eclipse?**

1) Photosphere   2) Corona   3) Chromosphere   4) Core

44. **The amplitude of a wave is _____**

1) The distance the wave moves in one second

2) The distance the wave moves in one time period of the wave

 3) The maximum distance moved by the medium particles on either side of the mean position

 4) The distance equal to one wave length

45. **If the distance between centres of earth and moon is D and the mass of earth is 81 times the mass of moon, then at what distance from centre of earth the gravitational force will be zero**

1) $\dfrac{D}{2}$ 2) $\dfrac{2D}{3}$ 3) $\dfrac{4D}{3}$ 4) $\dfrac{9D}{10}$

46. **A tail gunner jumped from a Lancaster bomber but did not break any bones or die because he fell into the branches of a tree and then into a snow bank. Physics explains this because**

1) The change in momentum was less than hitting the ground directly.

2) The impulse in less in trees and snow than ground

3) The increased stopping time in the tree meant a smaller stopping force

4) The decreased stopping time in the tree meant a smaller stopping force

47. **What is the weight of a body inside an artificial satellite of earth?**

    1) It depends on the mass of the body

    2) It depends on the velocity of satellite

    3) Product of its mass and gravitational acceleration

    4) Zero

48. **Why the same side of the moon always faces the Earth?**

    1) Moon rotate its own axis in 365 days

    2) Period of rotation of the moon on its axis and period of revolution around the earth is almost the same

    3) Moon has no atmosphere

    4) Moon rotate around earth in 15 days

49. **A tank contains a transparent liquid of refractive index μ. The bottom of the tank is a plane mirror as shown. A person at P looks at an object O and its image in the mirror. The distance between the object and its image in the mirror as perceived by the person is**

    1) $2\mu d$ 2) $\dfrac{2d}{\mu}$ 3) $\dfrac{2(H-d)}{\mu}$ 4) $\dfrac{(H+d)}{\mu}$

50. **A point object is placed at the centre of a glass sphere of radius 6 cm and refractive index 1.5. The distance of the virtual image from the surface i**

    1) 6 cm   2) 4 cm   3) 12 cm   4) 9 cm

CHEMISTRY (Q.NO.51 TO 65)

51. **Which metals are present in Dolomite?**

    1) Ca, Na   2) Ca, Cu   3) Mg, Cu   4) Ca, Mg

52. **Which of the following one is stored in water?**

    1) Phosphorous   2) Sodium   3) Potassium   4) All of these

53. **What is the calorific value of Bio-gas?**

    1) 50000   2) 45000   3) 22000   4) 40000

54. **Which of the following is a poor- conductor of electricity?**

    1) Copper   2) Aluminium   3) Bismuth   4) Iron

55. **Temperature does not change while a solid substance is _____**

    1) Melting   2) Boiling   3) Sublimating   4) Condensation

56. **In which type of colloid, Dispersion medium is liquid and dispersed phase is solid?**

    1) Emulsion   2) Sol   3) Gel   4) Solid sol

57. **What are the products formed when a candle burns in air?**

    1) Water only   2) CO_2 only   3) Water and CO_2 4) NO_2

58. **What the boiling point of chloroform?**

1) 61ºC   2) 64.5ºC   3) 100ºC   4) 78ºC

59. **Which of the following is not a fossil fuel?**

1) Coal   2) petroleum   3) charcoal   4) natural gas

60. **The substance which have very low ignition temperature and easily catch fire called**

_____

1) Flammable substances   2) inflammable substances

3) Non-flammable   4) all of these

61. **Identify the metal which do not react with water?**

1) Pt   2) Mg   3) Na   4) K

62. **Which of the following is a amphoteric oxide?**

1) KO_2 2) Na_2O 3) MgO   4) Al_2O_3

63. **Which of the following organisms causes to form petroleum:**

1) Plankton   2) virus   3) king penguin   4) Humpback whale

64. **The molecular formula of Chile salt petre is:**

1) $Ca(NO_3)_2$ 2) KNO_3 3) $NaNO_3$ 4) $AgNO_3$

65. **Offshore reserves of petroleum are found in:**

1) Bombay   2) Deltas of Godavari   3) deltas of kaveri   4) All of these

BIOLOGY (Q.NO.66 TO 80)

66. **Name the following:**

a) Tissue that connects muscle to bone in humans.

b) Tissue that transports food in plants.

c) Connective tissue with a fluid matrix.

d) Tissue that acts as an insulator.

1) a- tendon, b-phloem, c-blood, d-adipose

2) a-ligament, b-phloem, c-blood, d-areolar

3) a- ligament, b-phloem, c-plasma, d-cartilage

4) a-tendon, b-xylem, c-plasma, d-nerves

67. **Which of the following maintains the basic structure (shape) of the plant cell after shrinkage of the cell content during plasmolysis?**

1) Plasma membrane   2) Vacuole

3) Plastids   4) Cell wall

68.   Which is not a function of epithelial tissue?

1) It covers outer surface of organs and lines inner surface of cavities.

2) It protects body form injury, chemicals and microbes.

3) It connects various body organs.

4) It may be secretory in nature.

69.   Which of the following statements are true about Endoplasmic Reticulum?

1) Smooth Endoplasmic Reticulum makes lipids.

2) It is also called the control center of the cell.

3) It serves as a channel for the transport of materials like proteins between various organs of the protoplasm.

4) It modifies chemicals that are toxic to the cell.

1) a, b and c   2) b and c   3) a, c and d   4) all are correct

70.   Migratory birds fly to far away areas every year during a particular time from India because of

1) Non availability of food

2) Protecting themselves from enemies

3) Rainy season
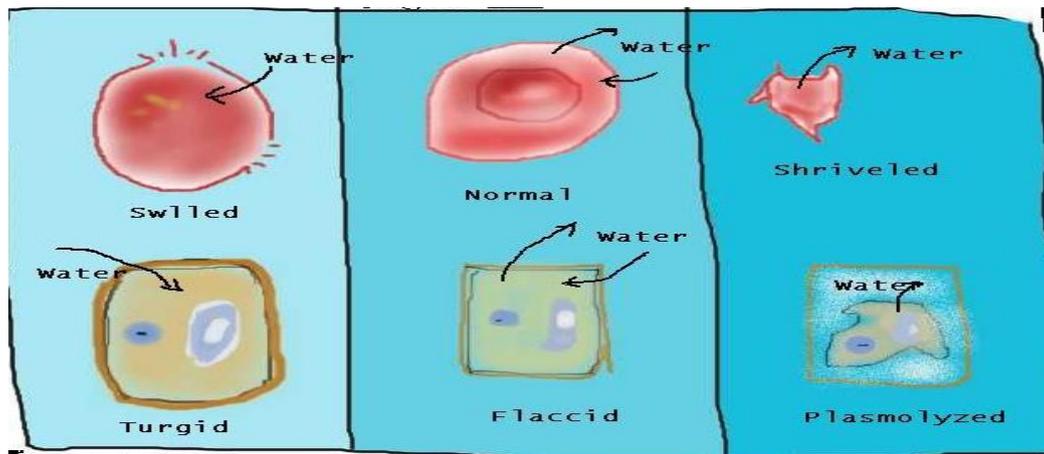
4) Summer season

71.   We should conserve biodiversity, because biodiversity represent whole eco-system comprising

1) Land, water   2) Water, fauna   3) Air, flora   4) all

72.   The tissue that is thin enough to allow diffusion is

1) Simple cuboidal epithelium   2) Simple squamous epithelium

3) Areolar connective tissue   4) Hyaline cartilage

73.

Observe the diagram and mention as to what kind of solution brings about the changes in the cells in the three cases

1) Hypertonic solution, Isotonic Solution and Hypotonic solution

2) Isotonic Solution, Hypertonic solution and Hypotonic solution

3) Hypotonic solution, Isotonic Solution and Hypertonic solution

4) Hypotonic solution, Hypertonic solution and Isotonic Solution

74.   Weeds
1) Don't interfere with crop yield
2) Compete with the crops for water, minerals and sunlight
3) Provides mineral nutrients to crop
4) All the above

75.   The modern methods of irrigation are
1) Sprinkler system   2) Surface irrigation
3) Moat   4) Drawing water from Well

76.   Which of the following types of manure is obtained by the decomposition of dead plants and animals?
1) Compost   2) Green manure
3) Farm yard manure   4) All of them

77.   Which of these is not a bacterial disease
1) Cholera   2) Typhoid   3) Tuberculosis   4) Measles

78. **Observe the diagram and answer the following questions**
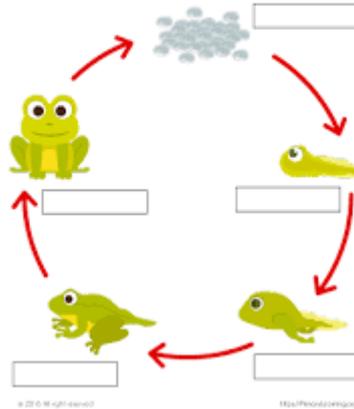
Eggs are the starting stage of life cycle of frog.

a) Name the next stage.

b) What are the changes that take place internally and externally in a frog called?

c) Which hormone helps in the process?

1) a)Tadpole, b)metamorphosis c)Adrenalin

2) a)Tadpole b) exosmosis   c)Adrenalin

3) a)Tadpole, b)metamorphosis, c)Thyroxin

4) a)Tadpole, b)metamorphosis, c)growth hormone

79. **Match the following:**

Column - A	Column B
a) Pairs of Chromosomes in the cells	i) Larynx
b) Adam's apple	ii) 12 to 19
c) Testes secrete	iii) 23
d) Adolescence period	iv) Testosterone

1) a-iii, b-i, c-iv, d-ii   2) a-i, b-iii, c-iv, d-ii

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

80. **In males, the sex chromosome consists**

1) One X and one Y   2) Both X and X   3) Both Y and Y   4) one Y only

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