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Maths & Science Olympiad–2026

NAME- _____FATHER'S NAME- _____

ROLL NO.- _____CLASS- 9th

MOBILE NO.- _____ INVIGILATOR SIGN. - _____

TIME- 90 Min. MM- 70

SUBJECT- MATHEMATICS & REASONING

Q1. If a and b are positive Real number such that $a^b = b^a$ and b = 7a then the value of a^3b^9 is

a) $7^{9/2}$ b) 7^{11}

c) $7^{20/7}$ d) 7^{17}

Q2. If the Radius of a sphere is increased by 3 cm then its volume is increased by 2196π cm^3. What is the Radius of original sphere?

a) 9 cm b) 15 cm

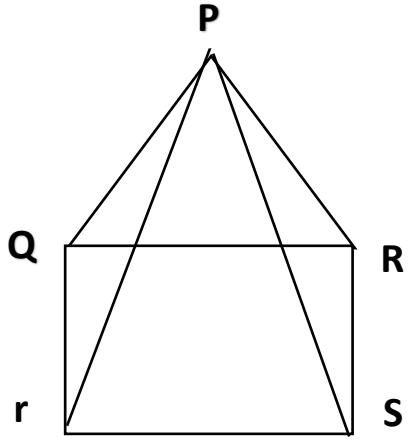
c) 18 cm d) 12 cm

Q3. A semi-circular sheet of metal of diameter 28 cm is bent into an open conical cup. Find the depth of the cup formed.

a) 13.12 cm b) 12.29 cm

c) 12.12 cm d) 12.99 cm

Q4. In the given figure, PQR is an equilateral triangle and QRST is a square, then $\angle PSR$



a) 30^0 b) 15^0

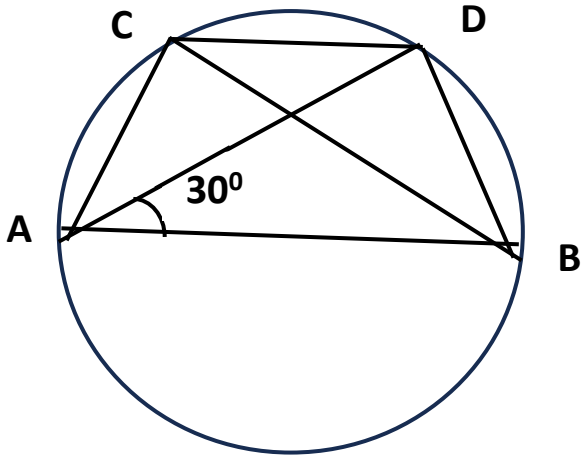
c) 90^0 d) 90^0

Q5. The Bisection of angles of a parallelogram forms a

a) Trapezium b) Rectangle

c) Rhombus d) Kite

Q6. In the given figure, AOB is the Diameter of a circle and CD || AB of $\angle BAD = 30^0$ then $\angle CAD =$



a) 30^0 b) 60^0

c) 45^0 d) 50^0

Q7. If x = $\frac{a-b}{a+b}$, y = $\frac{b-c}{b+c}$, Z = $\frac{c-a}{c+a}$ then the value of $\frac{(1+x)(1+y)(1+z)}{(1-x)(1-y)(1-z)}$ is

_____

a) abc b) $a^2b^2c^2$

c) 1 d) -1

Q8. If the angles of a triangle are in the Ratio 3:4:5 then the triangle formed will be

a) Scalene triangle b) Right angled triangle

c) Isosceles triangle d) None

Q9. If $2^x = 3^y = 6^{-z}$ then $\frac{1}{x} + \frac{1}{y} + \frac{1}{z}$ is equal to

a) 0 b) 1

c) $\frac{3}{2}$ d) $-\frac{1}{2}$

Q10. The Radius and Height of a cone are each increased by 20% then the volume of the cone is increased by

a) 20% b) 40%

c) 60% d) 72.8%

Q11. The volume and whole Surface Area of a Cylindrical Solid of Radius 'r' units are v and s respectively. If the Height of cylinder is 1 Unit then $\frac{V}{S}$ is equal to

a) $\frac{1}{2}\left(1-\frac{1}{r+1}\right)$ b) $\frac{1}{2}\left(1+\frac{1}{r+1}\right)$

c) $\frac{1}{2}\left(1-\frac{1}{r}\right)$ d) $\frac{1}{2}\left(1+\frac{1}{r}\right)$

Q12. The area of triangle, two sides of which are 8 cm and 11 cm and the perimeter is 32 cm is $k\sqrt{30}$ cm² find the value of k.

a) 8 b) 6

c) 7 d) 9

Q13. If $x^{1/3} + y^{1/3} + z^{1/3} = 0$ then which one of the following expression is correct.

a) $x^3 + y^3 + z^3 = 0$ b) $x + y + z = 3\, x^{1/3}\, y^{1/3}\, z^{1/3}$

c) $x + y + z = 3xyz$ d) $x^3 + y^3 + z^3 = 3xyz$

Q14. A father is 7 times as old as his son. Two years ago, the father was 13 times as old as his son. Father's present age is.

a) 24 years b) 28 years

c) 30 years d) 32 years

Q15. The sum of the digits of a two digit number is 14. If 18 is subtracted from the number, digits are Reversed. Find the number.

a) 86 b) 77

c) 68 d) 76

Q16. What is the area of an isosceles triangle with equal sides b and base a?

a) $\frac{a}{2}\sqrt{b^2-a^2}$ b) $\frac{1}{2}\ a\sqrt{4b^2-a^2}$

c) $\frac{a}{4}\sqrt{b^2-a^2}$ d) $\frac{a}{4}\sqrt{4b^2-a^2}$

Q17. What is the square root of $9 + 2\sqrt{14}$?

a) $1 + 2\sqrt{2}$ b) $\sqrt{2} + \sqrt{7}$

c) $\sqrt{3} + \sqrt{6}$ d) $\sqrt{2} + \sqrt{5}$

Q18.) A cone of height 24 cm has a curved surface area 550 cm^2? Find its volume

a) 1112 cm^3 b) 2332cm^3

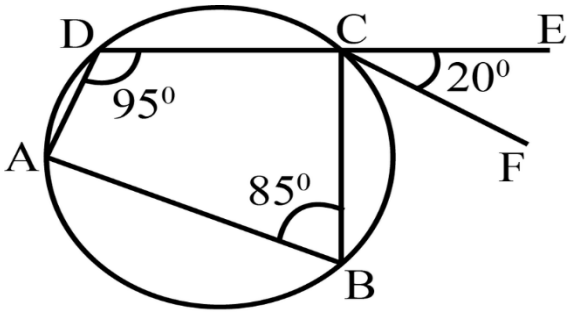
c) 1232 cm^3 d) 1124 cm^3

Q19. ABC is a right angled triangle, right angled at B. D is a point on AC such that AD=12 cm and CD=16 cm. If BD bisects ∟ABC, then perimeter of ΔABC is

a) 67.2 cm b) 56.8 cm

c) 5.6 cm d) None

Q20. If DC is produced to E and CF | | AB, then ∟BAD =



a) 95º b) 85°

c) 105º d) 75°

Q21. A field is in the shape of a trapezium whose parallel sides are 50m and 15m. the non-parallel sides are 20m and 25m what is the area of the field?

a) $\frac{900\sqrt{6}}{7}m^2$ b) $\frac{1100\sqrt{6}}{7}m^2$

c) $\frac{1300\sqrt{6}}{7}m^2$ d) $\frac{1500\sqrt{6}}{7}m^2$

Q22.) If $3^{2x-8}/225 = 5^3/5^x$, then x =?

a) 2 b) 3

c) 5 d) 4

Q23. Area of a given triangle is x, square units. If the sides of this triangle be doubled, then the area of the new triangle becomes x square units. Find the percentage increase in area.

a) 100% b) 200%

c) 300% d) None

Q24. If Radius of a right circular cylinder is increased by 10% then what percent it heigh should be decreased so that its volume remains unchanged

a) 17.26% b) 17.36%

c) 17.46% d) None

Q25. The volume of cube is 2744 cm^3, its surface area is.

a) 156 cm^2 b) 199 cm^2

c) 153 cm^2 d) None

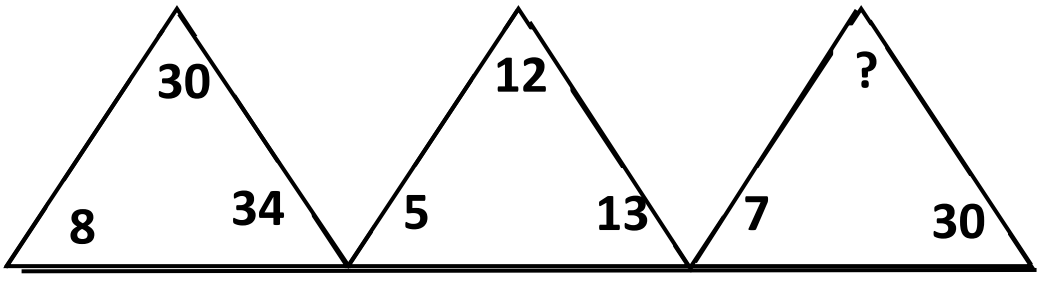
Q26. Choose the missing term out of the given alternatives.

Q1F, S2E, U6D, W21C, Y88B, ?

a) A245Z b) A345A

c) A445A d) A445Z

Q27. Insert the missing number.



a) 11 b) 27

c) 19 d) 22

Q28. It is 3'O clock in a watch and it is rotated by 10 degrees in a manner such that if the minute hand points towards the North-East, then hour hand will point towards which direction?

a) South b) South-West

c) North-West d) South-East

Q29. Kirti walks 30 meters towards North. She then turns left and walks 50 meters. She again turns left and walks meters further, she moves 10 meters after turning to the right. How far is she from her original position?

a) 45 meters b) 50 meters

c) 60 meters d) 40 meters

Q30. In a certain code 'NATIONAL' is written as 'JUBOKZMN'. How is 'ELECTION' written in that code?

a) FMFDSHNM b) DFMFMNHS

c) DMFMFHNS d) MFDFHSMN

Q31. In a certain code language 'you can dance' is written as "ca ba ja", and 'dance was nice' is written as "du ku ja". What is the code for 'dance'?

a) ja b) du

c) ku d) ba

Q32. Read the following information.

(i) 'A × B' means 'A is father of B'

(ii) 'A – B' means 'A is mother of B'

(iii) 'A ÷ B' means 'A is brother of B'

If 'P – R ÷ Q × T ÷ S', then how is P related to T?

a) Grandfather b) Grandson

c) Father-in-law d) Grand mother

Q33. Which one of the following combinations is definitely incorrect?

a) Architecture – Chennai

b) Finance – Surat

c) Engineering – Surat

d) None of these

Q34. Find the missing number in the given number series.

4, 15, 48, 147, ?, 1335

a) 364

b) 441

c) 426

d) 444

Q35. If 15th August 1988 was a Monday, then what day of the week was on 10th February 1993?

a) Tuesday

b) Wednesday

c) Thursday

d) Friday

SUBJECT- SCIENCE

Q36. The molecular mass of compound $CaSO_4.1/2H_2O$ will be:

a) 145

b) 154

c) 1224

d) 2448

Q37. Which quantity is same for one mole of ethanol and one mole of ethane?

a) Mass

b) Number of atoms

c) Number of molecules

d) Volume at r.t.p

Q38. Which of the following correctly represent the electronic distribution in the Mg atom?

a) 3, 8, 1

b) 2, 8, 2

c) 1, 8, 3

d) 8, 2, 2

Q39. Rutherford's alpha (α) scattering experiment resulted into discovery of

a) electron

b) proton

c) nucleus in the atom

d) atomic mass

Q40. The formula of chloride of a metal M is MCL_3 then the formula of the phosphate of metal M will be:

a) MPO_4 b) M_2PO_4

c) M_3PO_4 d) $M_2(PO_4)_3$

Q41. Which atom has the same electronic configuration as the ions formed when potassium and chlorine react to form the compound potassium chloride?

a) Atoms of Neon b) Atoms of Argon

c) Atoms of Krypton d) All of the above

Q42. Which technique is used to separate a mixture of Iodine and Common salt.

a) Filtration b) Sublimation

c) Distillation d) Chromatography

Q43. Which of the following is the smallest particle of an element that can take part in a chemical reaction?

a) Molecule b) Ion

c) Atom d) Molecule

Q44. What does the diffusion of potassium permanganate crystal in water demonstrate?

a) Water is continuous in nature

b) Potassium permanganate particles are large

c) Matter is made up of tiny particles

d) Potassium permanganate is not soluble in water

Q45. Which of the following is a chemical change?

a) Melting of wax b) Boiling of water

c) Dissolving sugar d) Burning of paper

Q46. DDT is

a) A non-degradable pollutant
b) A biodegradable pollutant
c) An antibiotic
d) Not a pollutant

Q47. Which of the following phenomena is commonly referred as 'cell drinking'?

a) Exocytosis
b) Pinocytosis
c) Endocytosis
d) Phagocytosis

Q48. Where are the essential proteins and lipids required for cell membrane, manufactured?

a) Lysosome
b) Chromosomes
c) Endoplasmic Reticulum
d) Mitochondria

Q49. Haversian system is typically found in bones of

a) fishes
b) Aves
c) reptiles
d) mammals

Q50. Detoxification site in the liver cell is

a) Golgi apparatus
b) Free ribosomes
c) RER
d) SER

Q51. What happens if ribosomes of a cell are destroyed?

a) Photosynthesis does not take place.
b) Respiration does not occur.
c) Fats cannot be stored.
d) Proteins will not be formed.

Q52. Which of the following is a diploid cell?

a) Sperm
b) Ovum
c) Zygote
d) Pollen

Q53. The red blood cell or erythrocyte

(i) transports oxygen as oxyhaemoglobin.

(ii) engulfs and ingests microorganisms that enter the bloodstream.

(iii) transports carbon dioxide as carbamino haemoglobin.

(iv) produces antibodies.

a) (i) and (iii) only

b) (ii) and (iv) only

c) (i), (ii) and (iii) only

d) (i), (ii), (iii) and (iv)

Q54.Which of the following is present in animal cell but absent in plant cells?

a) Golgi bodies

b) Endoplasmic reticulum

c) Mitochondria

d) Centriole

Q55. Assertion: The inner lining of intestine has tall epithelial cells.

Reason: Columnar epithelium facilitates absorption and secretion

a) Both assertion and reason are true and reason is the correct explanation of assertion.

b) Both assertion and reason are true but reason is not the correct explanation of assertion.

c) Assertion is true but reason is false.

d) Both Assertion and Reason are false

Q56. A ball thrown vertically upward returns to the thrower after 6 s. The ball is 5 m below the highest point at t = 2 s. The time at which the body will be at same position.

Take g = 10 m/s^2 square

a) 2.5 second

b) 3 second

c) 4 second

d) 5 second

Q57. An object of mass 2 kg is sliding with a constant velocity of 4 m/s on frictionless horizontal table. The force required to keep the object moving with the same velocity is

a) 32 N

b) 0 N

c) 2 N

d) 8 N

Q58. An object is put one by one in three liquids having different densities.

The object floats with1/9, 2/11 and 3/7 parts of their volumes outside the liquid surface in liquids of densities a, b and c, respectively.

Which of the following statements is correct?

a) $a > b > c$ b) $a > b < c$

c) $a < b > c$ d) $a < b < c$

Q59. An iron sphere of mass 10 kg has the same diameter as an aluminium sphere of mass 3.5 kg. Both spheres are dropped simultaneously from a tower. When they are 10 m above the ground, they have the same:

a) acceleration b) momenta

c) potential energy d) kinetic energy

Q60. The wavelength of sound wave travelling in air with a velocity 300 m/s is 60 cm. Calculate its frequency.

a) 1250 m/s b) 1150 m/s

c) 950 m/s d) zero

Q61. A force acts on a particle of mass 200 g. The velocity of the particle changes from 15 m/s to 25 m/s in 2.5 s. Assuming the force to be constant, its magnitude is

a) 0.4 N b) 0.6 N

c) 0.8 N d) 0.5 N

Q62. A car is travelling on a natural highway, it travels 30 km at a uniform speed of 40 km/h and the next 30 km at a uniform speed of 20 km/h. Find its average speed.

a) 16.5 km/h b) 26.7 km/h

c) 35.9 km/h d) 43.1km/h

Q63. A boy is whirling a stone tied with a string in an horizontal circular path. If the string breaks, the stone will

a) continue to move in the circular path.

b) move along a straight line towards the centre of the circular path.

c) move along a straight line tangential to the circular path.

d) move along a straight line perpendicular to the circular path away from the boy.

Q64. If soldiers use guns of different weights with bullets of a fixed weight, then they prefer

a) light guns as handling them is easy

b) heavy guns as they can be held firmly

c) heavy guns as they have less recoil

d) light guns as they can be carried easily

Q65. If the distance between two consecutive crests is L, then the wavelength of the wave is given by:

a) L/2 b) L

c) 2L d) L/4

Q66. How many moles are present in 40 g of He?

a) 5 moles b) 20 moles

c) 6 moles d) 10 moles

Q67. The atomic mass of sodium is 23, the number of moles in 46 g of sodium is

a) 4 b) 2

c) 0 d) ½

Q68. Myelin sheath is present on

a) Cell body b) Dendrite

c) Axon d) All of these

Q69. Rust of wheat plant disease is caused by-

a) Fungi b) Bacteria

c) Virus d) Protozoa

Q70. The weight of body on the surface of the Earth is 12.6 N. when it is raised to a height half the radius of the Earth, then what will be its weight?

a) 1.2 N

b) 2.8 N

c) 3.7 N

d) 5.6 N