

MATHS:

1. If $10(2x-8) = 20$, then what is the value of $(3x^2-1)$?
a. $11/3$ b. 0 c. 74 d. $1/3$ e. $-1/3$
2. If $a + b = 8$ and $a - b = 8$, the $a^3 - b^3 =$
a. 512 b. 64 c. 36 d. 89 e. 0
3. If 50 percent of a number is 60, then 2 percent of that number is
a. 25 b. 150 c. 2.4 d. 100 e. 400
4. What is the value of $(-i)$?
a. 1 b. $\sqrt{-1}$ c. 0 d. $-\sqrt{-1}$ e. 2
5. The volume of sphere is
a. $2\pi rL$ b. $(4/3)\pi r^3$ c. πr^2 d. $(3/4)\pi r^3$ e. πr^2h
6. If x and y are integers such that $y^3 = x^2$, which of the following could NOT be the value of y ?
a. 0 b. 1 c. 2 d. -1 e. 27
7. Two vectors, A and B , lie in a three-axis coordinate system such that A is perpendicular to B . Which of the following is correct?

	$A \cdot B$	$A \times B$
A	scalar	scalar
B	vector	vector
C	scalar	vector
D	vector	scalar

8. If point $A(5,6)$ lies on the line $y = 6x + c$, what is the value of c ?
a. 19 b. $19/4$ c. $-17/4$ d. $1/5$ e. -24
9. _____ = $\sin A \cos B + \cos A \sin B$
a. $\cos(A+B)$ b. $\sin(A+B)$ c. $\sin(A-B)$ d. $\cos(A-B)$ e. 0
10. What is the probability of throwing two sixes in a row when I throw a dice twice. Assuming that both throws are independent.
a. 0.80 b. 0 c. 0.028 d. 0.16 e. 1

PHYSICS:

1. A boy throws a ball in the air, assuming the ball leaves his hand at 30m/s and acceleration due to gravity is 9.8m/s^2 . What will be the time taken by the ball to return to his hand?
a) 3
b) 6

- c) 12
 - d) 24
2. Light enters a denser medium (glass) from a rarer medium (air). It will :
- a) Reflect back assuming angle of incidence is less than the critical angle
 - b) Bend towards the normal
 - c) Bend away from the normal
 - d) Go straight through
3. A current of 5mA passes through a $2M\Omega$ purely resistive load. The load dissipates:
- a) 50W
 - b) 10kW
 - c) 50mW
 - d) 10mW
4. An object weighs 98N on Earth and I know that the gravity of moon is 1/6 of that on Earth. What would be its **mass** on the Moon?
- a) 10kg
 - b) 60kg
 - c) 1.66kg
 - d) 98kg
5. The cross product of 2 vectors produces:
- a) Vector acting parallel to the first vector
 - b) Vector mutually perpendicular to both the constituent vectors
 - c) Scalar equal to their product
 - d) Scalar equal to the sum of the two constituent vectors
6. If 3 resistors are connected in parallel:
- a) The resistance will be smaller than the smallest individual resistances
 - b) The resistance will be somewhere in between the individual resistances
 - c) The resistance will be larger than the largest individual resistances
 - d) Information given is not enough to determine the effective resistance
7. An object weighing 10N and the other weighing 50N are dropped from a tall building. Which would reach the ground first?
- a) 10N weight
 - b) 50N weight
 - c) Both at the same time
 - d) Neither
8. Kinetic energy is the energy possessed by an object due to its
- a) Position
 - b) Velocity
 - c) Acceleration
 - d) Shape
9. Transformer principle is applicable on
- a) Alternating Current (AC) only
 - b) Direct Current (DC) only
 - c) Both AC and DC

- d) Neither AC nor DC
10. In the equation $E=mc^2$ as proposed by Einstein.
m and c stand for
- mass defect and speed of light
 - mass defect and crystal frequency
 - magnetic flux and speed of light
 - magnetic flux and crystal frequency

CHEMISTRY:

- What is the symbol of Gold
 - Au
 - Go
 - Or
 - Cr
- The molecular formula of Benzene is
 - CH₄
 - C₂H₄
 - C₂H₂
 - C₆H₆
- The first period of periodic table contains _____ elements.
 - 1
 - 2
 - 8
 - 18
- Sodium bicarbonate is generally known as _____.
 - Baking soda
 - Washing soda
 - Caustic soda
 - Limestone.
- The unit of viscosity is _____.
 - Millipoise
 - Dyne/cm
 - Joule
 - Ampere
- Evaporation is a _____ process.
 - Chemical
 - Natural
 - Cooling
 - None of these
- The process in which many small molecules join together to form large molecule is called _____.
 - Cracking
 - Polymerization
 - Isomerism
 - Alkylation
- Urea is a kind of _____ fertilizer.
 - Nitrogenous
 - Potassic
 - Phosphatic
 - None of these.
- The atomic number of carbon is _____.
 - 6
 - 12
 - 18
 - 24
- Cathode rays carry _____ charge.
 - +ve
 - ve
 - Neutral
 - None of these

ENGLISH:

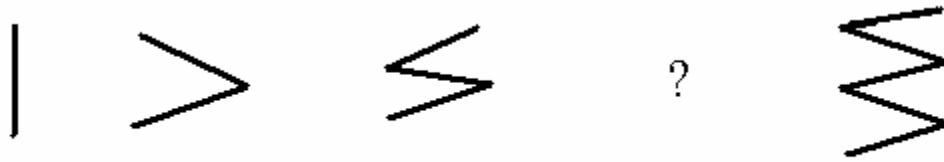
- He _____ the room.
 - did not leave
 - did not left
 - had leave
 - had leaving
- Can you speak a little louder? _____
 - Me cannot hear you
 - I cannot hear you
 - I hearing you
 - I cannot heard you
- He _____ gone home since January.
 - has not
 - did not
 - will not
 - shall not

4. _____ you ever been sick?
 - a) Have
 - b) Has
 - c) Did
 - d) Does
5. Last year he _____ that problem all by himself.
 - a) Solves
 - b) Had solved
 - c) does solve
 - d) did solved
6. Where _____ the whole weekend.
 - a) Have you been
 - b) Has you been
 - c) Did you be
 - d) Did you been
7. Choose the correct response.
Who is my brother's daughter?
 - a) My niece.
 - b) My nephew.
 - c) My sister in law
 - d) My chauffeur.
8. He _____ causing a lot of trouble lately.
 - a) Has been
 - b) Had been
 - c) Has being
 - d) Had being
9. I _____ enough!
 - a) has had
 - b) did had
 - c) does have
 - d) have had
10. I _____ him going home early today.
 - a) See
 - b) Have been seeing
 - c) Saw
 - d) Have been sawing

IQ:

1. 3:9 and 5:25, then ? : 49.
 a.14 b.12 c.7 d.6
2. Write the missing number.
 35, 33 , 30, 26, ? , 15
 a. 23 b. 21 c.20 d.18
3. A "Palindrome" is a number, such as 93539, which reads the same forward and backward. How many palindromes are there between 100 and 1000?
 a. 10 b.100 c.81 d.90

4. Find the missing shape.



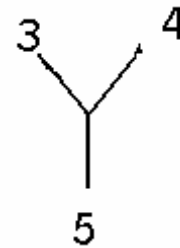
- a.  b.  c. 
- d. 

5. Find the missing number.

2, 3, 5, ?, 13, 21

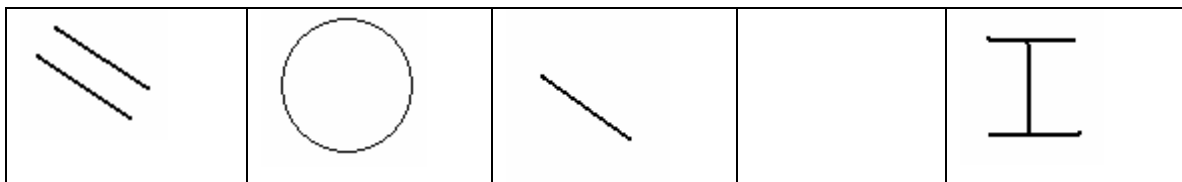
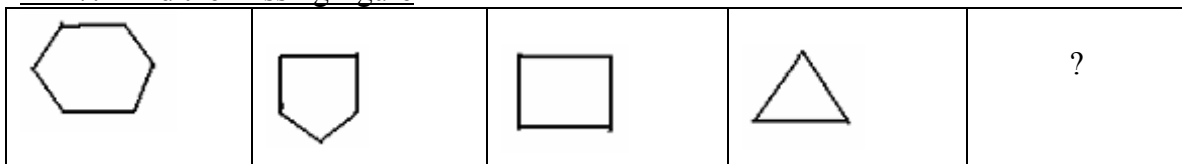
- a. 8 b. 7 c. 9 d. 11 e. 10

6. Find the missing number.



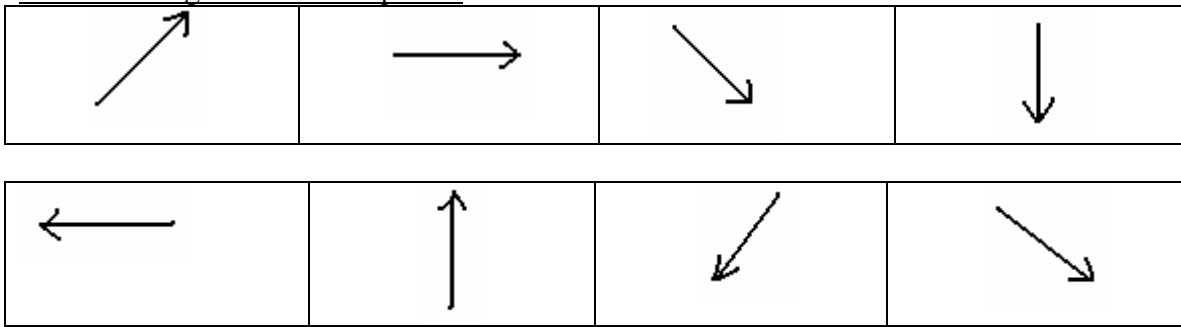
- a. 25 b. $\sqrt{61}$ c. 11 d. 30

7. Find the missing figure



- a. b. c. d. e.

8. Find the figure next in sequence



a

b

c

d

9. Find the next alphabet in sequence

Z, W, T, Q, ?

a.L

b.M

c.N

d.O

10. Zafar drives 8 miles west, 3 miles north, 2 miles east and then 1 mile north. How many miles is Zafar away from his starting point?

a. $\sqrt{32}$

b. $\sqrt{52}$

c. 25

d. 8

11. What is the value of “?” in the given series:

0 3 10 13 20 23 ?

a.26

b.27

c.30

d.33

12. Nazim is taller than Afzal, and Yasir is shorter than Nazim.

Which of the following statements would be most accurate?

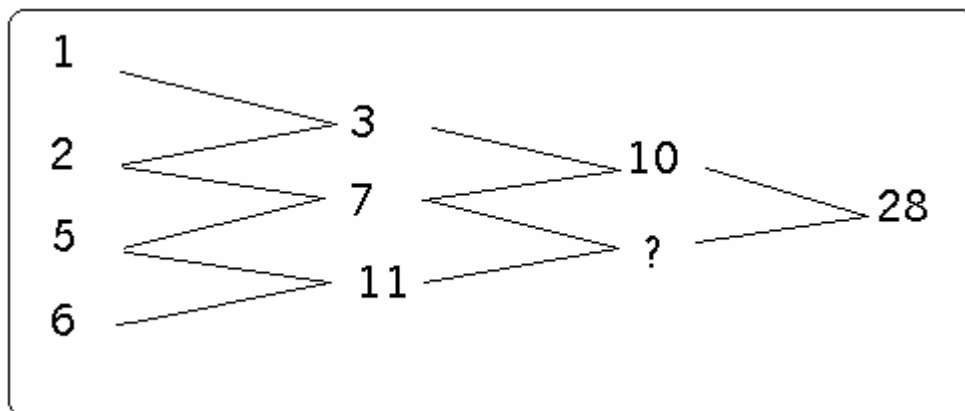
a. Yasir is taller than Afzal

b. Yasir is shorter than Afzal.

c. Yasir is as tall as Afzal.

d. Nazim is the tallest of the three.

13. What is the value of “?” in the following figure?



a.12

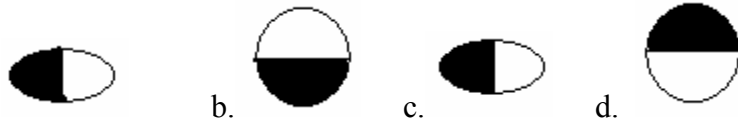
b.18

c.77

d.4

14. Identify the pattern next in sequence





15. What are the missing numbers in the following series?

1:1, 8:4, 9:27, 64:16, 25:125, ??:, 49:343

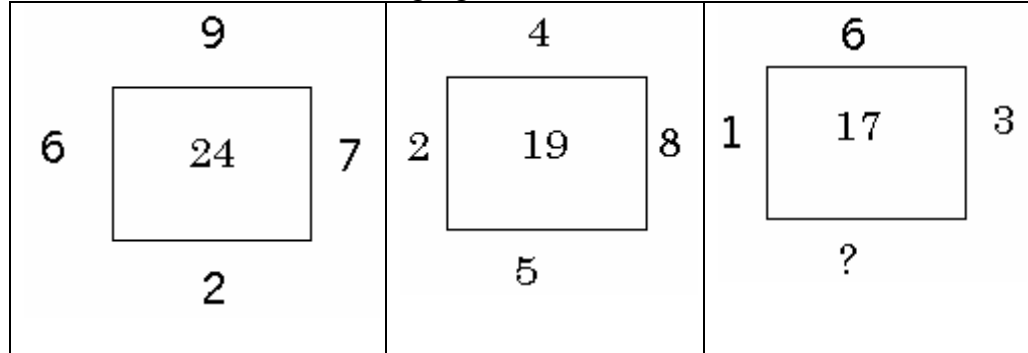
a. 36:316

b. 216:36

c. 316:16

d. 16:216

16. What is the value of “?” in the following figure.



a. 11

b. 17

c. 7

d. 14

17. If your profit in a deal was 15% and you got Rs. 120/-, the deal was worth

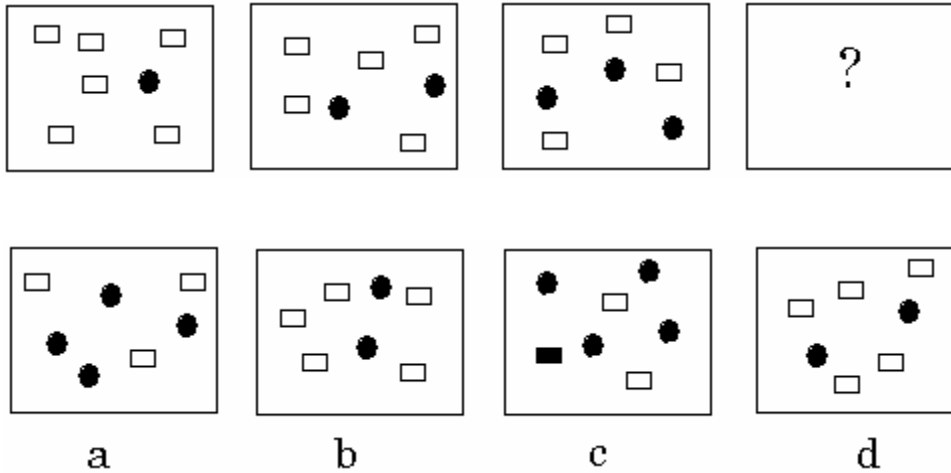
a. Rs 840

b. Rs 800

c. Rs 240

d. Rs 650

18. Please find the figure in the continuing series :



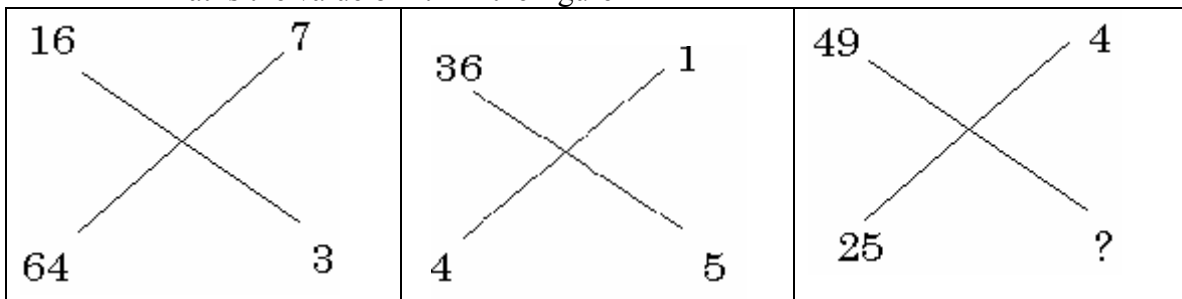
a

b

c

d

at is the value of “?” in the figure



a. 5

b. 6

c. 7

d. 8

20. What is the next character in the sequence: A, D, G, J, _____

a. P

b. N

c. L

d. M

ELECTRICAL TRADE:

Q1: Ohm Law states that:

- A. $E=IR$
- B. $V=ZR$
- C. $P=VI$
- D. $I=VR$

Q2: Insulation of electrical wires, motor windings etc is measured by:

- A. Ammeter
- B. Voltmeter
- C. Megger
- D. Multi-Meter

Q3: Unit of potential difference is:

- A. Ohms
- B. Watts
- C. Volts
- D. Amperes

Q4: The device that transforms one voltage level to another is known as:

- A. Generator
- B. Motor
- C. Transformer
- D. Transducer

Q5: A 2-pole, 50 Hz Generator will run at:

- A. 100 RPM
- B. 300 RPM
- C. 3000 RPM
- D. 3500 RPM

Q6: The device which can store electrical charge is called:

- A. Inductor
- B. Capacitor
- C. Conductor
- D. Resistor

Q7: 1 horse-power equals:

- A. 756 Watts
- B. 746 Watts
- C. 736 Watts
- D. 726 Watts

Q8: A motor which runs on constant speed is called:

- A. Induction motor
- B. Synchronous motor
- C. Servo motor

Q9: A Transformer whose secondary voltage is greater than its primary voltage is a:

- A. Auto-Transformer
- B. Step-up Transformer
- C. Step-down Transformer

D. Power Transformer

Q10: An induction motor has _____ starting torque?

- A. High
- B. Low
- C. No

INSTRUMENTS TRADE

1. Thermocouple works on the principle that:

- a. The electrical resistance of a conductor changes as its temperature varies.
- b. Metals expand when heated
- c. When heat is applied on a junction of 2 dissimilar metals, an EMF is produced which can be measured at the other junction.
- d. Heating or cooling is produced when EMF is generated at the junction of two dissimilar conductors.

2. When the pressure at the inlet of a bourdon tube increases, the Bourdon tube

- a. heats up
- b. contracts
- c. uncoils
- d. explodes
- e. coils

3. The output of most electronic transmitters is

- a. 3-15 psig
- b. 3-15 mA
- c. 4-20 mA
- d. 1-5 V
- e. 4-20 mV

4. In a series circuit consisting of 3 resistors of 45 Ω each and a 50-V source, what is the approximate amount of heat produced?

- a. 16.6 W
- b. 18.5 W
- c. 135 W
- d. 150 W

5. Young's modulus of Elasticity "E" is:

- a. Stress/Gauge Factor
- b. Stress/ Strain
- c. Gauge factor/ Conductor Length
- d. Gauge Factor/ Gauge Resistance

6. To check for error in any measuring instrument by checking it against a standard is called

- a. Attenuation
- b. Accuracy

c. Calibration

d. Hunting

7. Which of the following is an appropriate use for a voltmeter?

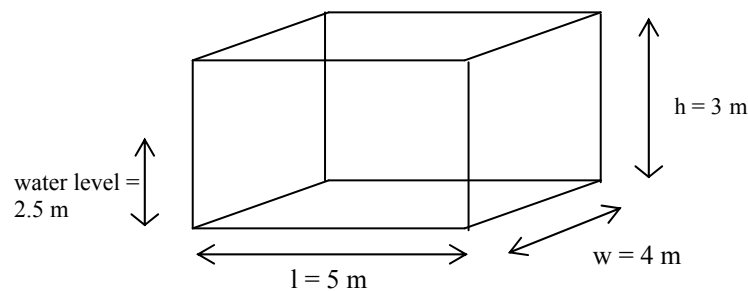
a. To measure difference of potential

b. To measure current flow

c. To determine total resistance

d. To determine power output

8. What is the pressure at the base of a tank containing water? Use the following figure.
(Density of water = 1000 kg/m^3)



a. 1250 Pa

b. 1500 Pa

c. 30000 Pa

d. 24500 Pa

9. Which of the following is **NOT** a sensor?

a. RTD

b. tachometer

c. micro switch

d. LED

10. Suppose we wish to measure the tendency of a fluid to resist the forces of deformation or the tendency of a fluid to flow. We would:

a. Measure its Specific Gravity

b. Measure its fluid Velocity

c. check how compressible it is

d. Measure its Viscosity