

**PHYSICS**

- In electric fittings in a house:  
(A) The live wire goes through the switch  
(B) The neutral wire goes through the switch  
(C) The earth wire goes through the switch  
(D) No wire goes through the switch
- Rate of heat generated by electric current in a resistive circuit is expressed in-  
(A) IR      (B) IR<sup>2</sup>      (C) I<sup>2</sup>R      (D)  $\sqrt{IR}$
- Lenz's law is a consequence of the law of conservation of:  
(A) Energy      (B) momentum  
(C) Angular momentum      (D) charge and mass
- A solenoid having an iron core has its terminals connected across an ideal D.C. source. If the iron core is removed the current flowing through solenoid:  
(A) Increases      (B) decreases  
(C) Remains unchanged      (D) nothing can be said
- The image of the moon is formed by a concave mirror whose radius of curvature is 4.8 m at a time when distance from the moon is  $2.4 \times 10^8$  m. if the diameter of the image is 2.2 cm, the diameter of the moon is-  
(A)  $1.1 \times 10^6$  m      (B)  $2.2 \times 10^6$  m  
(C)  $2.2 \times 10^8$  m      (D)  $2.2 \times 10^{10}$  m
- The minimum distance between an object and its real image formed by a convex lens of focal length f is-  
(A) f      (B) 2f      (C) 3f      (D) 4f
- Which of the following colour has the least wavelength?  
(A) Red      (B) Orange      (C) Violet      (D) Blue
- The device in which the nuclear fission and release of energy is controlled is known as-  
(A) Thermopile      (B) Thermostat  
(C) Nuclear reactor      (D) Cloud chamber

## CHEMISTRY

9. Which of the following statements is correct?
- (A) A chemical equation tells us about the substances involved in a reaction.
- (B) A chemical equation informs us about the symbols and formulae of the substances involved in a reaction.
- (C) A chemical equation tells us about the atoms or molecules of the reactants and Products involved in a reaction.
- (D) All are correct.
10. Chemical formula of baking soda is-
- (A)  $\text{MgSO}_4$                       (B)  $\text{Na}_2\text{CO}_3$                       (C)  $\text{NaHCO}_3$                       (D)  $\text{MgCO}_3$
11. The general formula for saturated hydrocarbon is -
- (A)  $\text{C}_n\text{H}_{2n+2}$                       (B)  $\text{C}_n\text{H}_{2n}$                       (C)  $\text{C}_n\text{H}_{2n-2}$                       (D)  $\text{C}_n\text{H}_{2n-n}$
12. One important merit of modern periodic table is -
- (A) it explains why elements in the same group have the same chemical properties.
- (B) Hydrogen has been placed accurately.
- (C) Isobars have not been placed separately.
- (D) It is based on classifying elements according to their atomic masses.
13. The first compound to be prepared in the laboratory was -
- (A) Methane                      (B) ethyl alcohol                      (C) acetic acid                      (D) urea
14. The number of elements in the 4th period of periodic table is -
- (A) 8                      (B) 18                      (C) 10                      (D) 32
15. Covalent compounds are -
- (A) Good conductors of electricity                      (B) bad conductors of electricity
- (C) Semiconductors of electricity                      (D) none of these



24. If  $5 \tan \theta = 4$ , then value of  $\frac{5 \sin \theta - 3 \cos \theta}{5 \sin \theta + 2 \cos \theta}$  is

- (A)  $\frac{1}{3}$                       (B)  $\frac{1}{6}$                       (C)  $\frac{4}{5}$                       (D)  $\frac{2}{3}$

25. Upper part of a vertical tree which is broken over by the winds just touches the ground and makes an angle of  $30^\circ$  with the ground. If the length of the broken part is 20 metres, then the remaining part of the trees is of length

- (A) 20 metres                      (B)  $10\sqrt{3}$  metres                      (C) 10 metres                      (D)  $10\sqrt{2}$  metres

**MAT**

26. If BAT is coded as 283, CAT is coded as 383 and ARE is coded as 801, then the code for BETTER is—

- (A) 213310                      (B) 213301                      (C) 123301                      (D) 012334

27. If water is called black, black is called tree, tree is called blue, blue is called rain, rain is called pink and pink is called fish in a certain language then what is the colour of sky called in that language ?

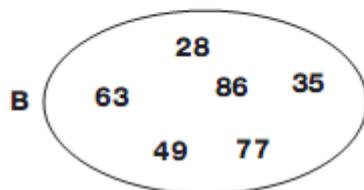
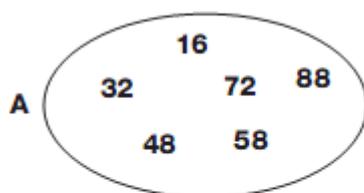
- (A) Blue                      (B) Fish                      (C) Rain                      (D) Pink

28. A man walks 3 km northwards and then turns left and goes 2 km. He again turns left and goes 3 km. He turns right and walks straight. In which direction he is walking now ?

- (A) East                      (B) West                      (C) North                      (D) South

29. Which number is the odd one out in each oval?

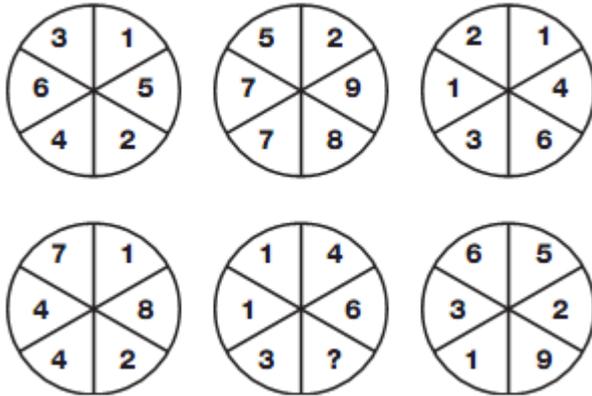
Which number is the odd one out in each oval?



- (A) A:58 B:86                      (B) A:48 B:63  
 (C) A:88 B:28                      (D) A :32 B:49

30. which number replaces the question mark?

Which number replaces the question mark?



- (A) 6                      (B) 7                      (C) 8                      (D) 9

31. In an examination Raj got more marks than Moti but not as many as Meena. Meena got more marks than Ganesh and Rupali. Ganesh got less marks than Moti but his marks are not the lowest in the group. Who is second in the descending order of marks?

- (A) Meena                      (B) Rupali                      (C) Raj                      (D) None of these

32. Each of these questions are based on the information given below:

- a) A ,B, C, D and E are five men sitting in a line facing to south - while M, N, O, P and Q are five ladies sitting in a second line parallel to the first line and are facing to North.
- b) B who is just next to the left of D, is opposite to Q.
- c) C and N are diagonally opposite to each other.
- d) E is opposite to O who is just next right of M.
- e) P who is just to the left of Q, is opposite to D.
- f) M is at one end of the line.

Who is sitting third to the right of O ?

- (A) Q
- (B) N
- (C) M
- (D) Data inadequate

33. If Amit’s father is Billoo’s father’s only son and Billoo has neither a brother nor a daughter. What is the relationship between Amit and Billoo ?

- (A) Uncle—Nephew                      (B) Father—Daughter
- (C) Father—Son                      (D) Grandfather—Grandson

**34.** An application was received by inward clerk in the afternoon of a weekday. Next day he forwarded it to the table of the senior clerk, who was on leave that day. The senior clerk next day evening put up the application to the desk officer. Desk officer studied the application and disposed off the matter on the same day, i.e., Friday. Which day the application was received by the inward clerk  
(A) Tuesday (B) Earlier week's Saturday (C) Wednesday (D) Monday

**35.** Flight to Mumbai leaves every 5 hours. At the information counter I learnt that the flight took off 25 minutes before. If the time now is 10 : 45 a.m., what is the time for the next flight ?  
(A) 2 : 20 a.m (B) 3 : 30 a.m. (C) 3 : 55 p.m (D) 3 : 20 p.m.

**36.** Babloo ranked 16th from the top and 29th from the bottom among those who passed an examination. 6 boys did not participate in the competition and 5 failed in the examination. How many boys were there in that class ?  
(A) 44 (B) 40 (C) 50 (D) 55

**37.** Indra is 7th from the left and Jaya is 5th from the right. When they interchange their position Jaya becomes 19th from the right. What is Indra's position from the left ?  
(A) 21<sup>st</sup> (B) 19<sup>th</sup> (C) 23<sup>rd</sup> (D) 20th

**38.** How many 5's are there in the following sequence of numbers which are immediately preceded by 7 ?  
8 9 5 3 2 5 3 8 5 5 6 8 7 3 3 5 7 7 5 3 6 5 3 3 5 7 3 8  
(A) One (B) Two (C) Three (D) Four

**39.** If it takes 2 hours to drive to City A and the city is 120km away, what speed was the vehicle travelling at?  
(A) 30 km per hour (B) 40 km per hour  
(C) 50 km per hour (D) 60 km per hour

**40.** Pointing to a photograph of a girl, Rajan said "She has no sister or daughter but her mother is the only daughter of my mother." How is the girl in the photograph related with Rajan's mother ?  
(A) Sister in law (B) Grand daughter  
(C) Daughter in law (D) None of these

