Atomic number, Mass number, Atomic species

25. Number of electrons in $-CONH_2$ is
(a) 22 (b) 24
(c) 20 (d) 28

26. The atomic number of an element having the valency shell electronic configuration $4s^2 4p^6$ is
(a) 35 (b) 36
(c) 37 (d) 38

27. The present atomic weight scale is based on
(a) C^{12} (b) O^{16}
(c) H^1 (d) C^{13}

28. Isoelectronic species are
(a) K^+, Cl^- (b) Na^+, Cl^-
(c) Na, Ar (d) Na^+, Ar

29. If the atomic weight of an element is 23 times that of the lightest element and it has 11 protons, then it contains
(a) 11 protons, 23 neutrons, 11 electrons
(b) 11 protons, 11 neutrons, 11 electrons
(c) 11 protons, 12 neutrons, 11 electrons
(d) 11 protons, 11 neutrons, 23 electrons

30. Which of the following oxides of nitrogen is isoelectronic with CO_2
(a) NO_2 (b) N_2O
(c) NO (d) N_2O_2

31. The ratio between the neutrons in C and Si with respect to atomic masses 12 and 28 is
(a) 2 : 3 (b) 3 : 2
(c) 3 : 7 (d) 7 : 3

32. The atomic number of an element is always equal to
(a) Atomic weight divided by 2
(b) Number of neutrons in the nucleus
(c) Weight of the nucleus
(d) Electrical charge of the nucleus

33. Which of the following is isoelectronic with carbon atom
(a) Na^+ (b) Al^{3+}
(c) O^{2-} (d) N^+

34. CO_2 is isostructural with
(a) $SnCl_2$
(b) SO_2
(c) $HgCl_2$
(d) All the above

35. The hydride ions (H^-) are isoelectronic with
(a) Li (b) He^+
(c) He (d) Be

36. The number of electrons in the nucleus of C^{12} is
(a) 6 (b) 12
(c) 0 (d) 3

37. An element has electronic configuration 2, 8, 18, 1. If its atomic weight is 63, then how many neutrons will be present in its nucleus
(a) 30 (b) 32
(c) 34 (d) 33

38. The nucleus of the element $21E^{45}$ contains
(a) 45 protons and 21 neutrons
(b) 21 protons and 24 neutrons
(c) 21 protons and 45 neutrons
(d) 24 protons and 21 neutrons

39. Neutrons are found in atoms of all elements except in
(a) Chlorine (b) Oxygen
(c) Argon (d) Hydrogen

40. The mass number of an anion, X^{3-}, is 14. If there are ten electrons in the anion, the number of neutrons in the nucleus of atom, X_2 of the element will be
(a) 10 (b) 14
(c) 7 (d) 5

41. Which of the following are isoelectronic species $I = CH_3^+, II - NH_2, III - NH_4^+, IV - NH_3$
(a) I, II, III (b) II, III, IV
(c) I, II, IV (d) I and II

42. The charge on the atom containing 17 protons, 18 neutrons and 18 electrons is
(a) $+1$ (b) -2
(c) -1 (d) Zero

43. Number of unpaired electrons in inert gas is
(a) Zero (b) 8
(c) 4 (d) 18

44. In neutral atom, which particles are equivalent
(a) p^+, e^+ (b) e^-, e^+
(c) e^-, p^+ (d) p^+, n^o

45. Nuclei tend to have more neutrons than protons at high mass numbers because
(a) Neutrons are neutral particles
(b) Neutrons have more mass than protons
(c) More neutrons minimize the coulomb repulsion
(d) Neutrons decrease the binding energy

46. Which one of the following is not isoelectronic with O^{2-}

(a) N^{3-} (b) F^{-}

(c) Tl^{+} (d) Na^{+}

47. The number of electrons in $[^{40}_{19}K]^{-1}$ is

(a) 19 (b) 20

(c) 18 (d) 40

48. The number of electrons and neutrons of an element is 18 and 20 respectively. Its mass number is

(a) 17 (b) 37

(c) 2 (d) 38