Here are the **answers** for all the questions based on the chapter "**Structure of an Atom**" from your textbook.

SECTION A

(1) Multiple Choice Questions (MCQs)

1. **b) Protons, neutrons, and electrons**
2. **c) Electron**
3. **c) Neutral**
4. **a) J.J. Thomson**
5. **b) Ernest Rutherford**
6. **c) Atomic Mass Unit (amu)**
7. **c) Electron**
8. **b) Number of protons**
9. **b) Electrons**
10. **b) Valence shell**

(2) Fill in the Blanks

11. **Protons, Neutrons**
12. **Negative (-1.6 × 10^{-19} C)**
13. **Proton**
14. **Atomic number**
15. **Mass number**
16. **Electrons**
17. **6**
18. **James Chadwick**
19. **Orbit or Shell**
20. **Zero (0)**

(3) True or False

21. **False**
22. **False**

23. **True**
24. **False**
25. **True**
26. **True**
27. **True**
28. **True**
29. **False**
30. **False**

SECTION B

(4) Odd One Out (Give Reason)

31. **Molecule (Others are subatomic particles, whereas a molecule consists of atoms.)**
32. **Chloride Ion (Others are neutral elements, but chloride ion is a charged species.)**
33. **Mendeleev (Others proposed atomic models, whereas Mendeleev worked on the periodic table.)**
34. **Neon (Others are essential for respiration, but neon is an inert gas.)**
35. **Nucleus (Others are subatomic particles, but the nucleus is a structure inside an atom.)**
36. **Radical (Atoms and molecules exist independently, while radicals are charged species.)**
37. **Sulfur (Others are metals, but sulfur is a non-metal.)**
38. **Oxygen (Others are alkali metals, but oxygen is a non-metal.)**
39. **Oxygen-16 (Others are isotopes of carbon, while oxygen-16 is a different element.)**
40. **Nucleus (Others are parts of electron shells, but the nucleus is at the center of an atom.)**

(5) Matching Questions

41. **c) Positive charge**
42. **b) No charge**
43. **a) Negative charge**
44. **d) Number of protons**
45. **e) Sum of protons and neutrons**
46. **f) Combining capacity of an element**
47. **g) Discovered the nucleus**

48. h) Proposed the Plum Pudding Model
49. i) Electrons revolve in fixed orbits
50. j) Protons + Neutrons

(6) Name the Type of Reaction

51. Combination reaction
52. Decomposition reaction
53. Combination reaction
54. Decomposition reaction
55. Displacement reaction
56. Double displacement reaction
57. Physical change
58. Physical change
59. Combustion reaction
60. Combustion reaction

SECTION C

(7) Short Answer Questions

61. Proton, Neutron, Electron
62. Charge: -1, Mass: 9.109×10^{-28} g
63. The atomic number is the number of protons in an atom.
64. Isotopes are atoms of the same element with different mass numbers (e.g., Carbon-12 and Carbon-14).
65. The nucleus is positively charged because it contains protons, which carry a positive charge.
66. An atom is a single unit of an element, while a molecule is a combination of two or more atoms.
67. Valency is the combining capacity of an atom, determined by the number of valence electrons.
68. Noble gases are chemically inert and have a stable electronic configuration.
69. The periodic table helps in understanding element properties, atomic numbers, and valency.
70. Rutherford's gold foil experiment showed that an atom has a dense, positively charged nucleus.

(8) Diagram-Based Questions

(Refer to textbook for labeled diagrams.)

71. **Diagram of an atom with subatomic particles.**
72. **Bohr's atomic model with shells.**
73. **Structure of a water molecule.**
74. **Periodic table structure.**
75. **Electron distribution in sodium atom.**

(9) Reasoning-Based Questions

76. **Atoms combine to achieve a stable electronic configuration.**
77. **Noble gases have a full valence shell, so they do not need to react with other elements.**
78. **Electrons do not fall into the nucleus because they move in fixed energy levels.**
79. **Atomic number determines the chemical properties of an element, while atomic mass can vary due to isotopes.**
80. **Isotopes have the same number of protons and electrons, so their chemical properties remain identical.**

(10) Chemical Formula & Symbol-Based Questions

81. **CO_2 (Carbon dioxide)**
82. **NH_3 (Ammonia)**
83. **Au (Gold)**
84. **NaCl (Sodium chloride)**
85. **H_2O (Water)**

This completes **the answers for all the questions**. Let me know if you need any modifications! 🚀