

Q1. Choose The most appropriate option. Cutting over writing is not allowed. 12

1. The direction of induced e.m.f. in a circuit is in accordance with conservation of
(D) mass (C) charge (B) Energy (A) Momentum
2. The presence of a magnetic field can be detected by a
(D) small mass (C) stationary positive charge (B) stationary negative charge (A) magnetic compass
3. AND gate can be formed by using two
(D) NOT gates (C) OR gates (B) NOR gates (A) NAND gates
4. The output of a two-input NOR gate is 1 when
(D) A is '1' and B is '0' (C) A is '0' and B is '1' (B) both A and B are '0' (A) both A and B are '1'
5. If $X = A.B$, then X is '1' when
(D) A and B are '1' (C) A or B is '0' (B) A is '0' and B is '1' (A) A is '1' and B is '0'
6. The output of a NAND gate is '0' when
(D) both of its inputs are '0' (C) both of its inputs are '1' (B) any of its inputs is '0' (A) any of its inputs is '1'
7. In computer terminology information means
(D) any data (C) raw data (B) processed data (A) large data
8. The basic operations performed by a computer are
(D) both (B) and (C) (C) arithmetic operations (B) logical operations (A) non-arithmetic operations
9. From which of the following we can get information almost about everything
(D) book (C) teacher (B) computer (A) internet
10. What does the term e-mail stand for?
(D) Emergency mail (C) electronic mail (B) extra mail (A) external mail
11. Isotopes are atoms of same element with different
(D) Atomic mass (C) atomic number (B) number of protons (A) number of electrons
12. When Uranium (92 protons) ejects a beta particle, how many protons will be in the remaining nucleus?
(D) 89 protons (C) 90 protons (B) 91 protons (A) 93 protons

Q2. Give Short Answers. 10

1. Demonstrate by an experiment that a magnetic field is produced around a straight current-carrying conductor.
2. Describe a simple experiment to demonstrate that a changing magnetic field can induce e.m.f. in a circuit.
3. Differentiate between analogue electronics and digital electronics.
4. Write down some benefits of using digital electronics over analogue electronics.
5. What are the three universal Logic Gates? Give their symbols and truth tables.

Q3. Give Short Answers. 10

1. What is Internet? Internet is a useful source of knowledge and information. Discuss.
2. What is difference between data and information?
3. How light signals are sent through optical fiber?
4. What is difference between atomic number and atomic mass number? Give a Symbolical Representation of a nuclide.
5. Describe two uses of radioisotopes in medicine, industry.

Q4. Give Short Answers. 10

1. What are two common radiation hazards? Briefly describe the precautions that are taken against them.
2. What are the components of information technology?
3. Write down names of five analogue and five digital devices.
4. Describe the direction of an induced e.m.f. in a circuit?
5. What do you understand by the term mutual induction?

Q5 (a) Discuss HOUSE SAFETY ALARM. (b) Write note on OR-OPERATION.

Q6 (a) Discuss TRANSMISSION OF LIGHT SIGNALS THROUGH OPTICAL FIBRES. (b) Exp Nuclear Transmutations.