

PHYSICS

EXAMINATION SCHEME

There will be **three** papers, Papers 1, 2 and 3, all of which must be taken. Papers 1 and 2 will be a composite paper to be taken at one sitting.

- PAPER 1:** Will consist of fifty multiple choice questions lasting $1\frac{1}{4}$ hours and carrying 50 marks.
- PAPER 2:** Will consist of two sections, Sections A and B lasting $1\frac{1}{2}$ hours and carrying 60 marks.
Section A - Will comprise seven short-structured questions. Candidates will be required to answer any five questions for a total of 15 marks.
Section B - Will comprise five essay questions out of which candidates will be required to answer any three for 45 marks.
- PAPER 3:** Will be a practical test for school candidates or an alternative to practical work paper for private candidates. Each version of the paper will comprise three questions out of which candidates will be required to answer any two in $2\frac{3}{4}$ hours for 50 marks.

SAMPLE QUESTIONS

PAPER 1 (OBJECTIVES)

1. To rectify a current simply means to
 - A. increase the magnitude of the current.
 - B. measure the current using an ammeter.
 - C. convert the current from a.c to d.c.
 - D. connect more resistors in series in a circuit.
2. Which of the following statements is **correct** about laser light?
 - A. It converges at all times.
 - B. It diverges at all times.
 - C. It converges and diverges at different intervals.
 - D. It neither diverges nor converges.

3.

X	Y	Z
0	0	0
1	0	0
0	1	0
1	1	1

The truth table above represents a two input X, Y and a Z output device(s). The device(s) is

- A. AND gate.
 - B. NAND gate.
 - C. OR gate.
 - D. AND gate + inverter.
4. The dimensions of pressure is
- A. $ML^{-1}T^{-2}$
 - B. MLT^{-2}
 - C. ML^3T^{-2}
 - D. $ML^{-1}T$
5. The recoil of a gun after it has been shot is a demonstration of
- A. the principle of conservation of energy.
 - B. Newton's second law of motion.
 - C. the principle of conservation of matter.
 - D. Newton's third law of motion.
6. Two standard resistors of magnitudes 10Ω and 5Ω are connected in series to a series arrangement of secondary cells. If the current through the 10Ω resistor is 5A, the current through the 5Ω resistor is
- A. 2.5 A
 - B. 5.0 A
 - C. 7.5 A
 - D. 10.0 A.

PAPER 2

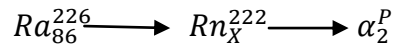
SECTION A (Short Structures)

1. (a) How does an *active satellite* differ from a *passive satellite*?
(b) State **one** use of an active satellite. [3 marks]
2. (a) Draw a two input Nand gate.
(b) State its truth table. [3 marks]

SECTION B
(Essay)

1. (a) Define a *photoelectron*. [2 marks]

- (b) The equation below represents a radioactive decay



- (i) What are the values of x and p ? [2 marks
(ii) State the conservation principles used in deriving the values of x and p . [2 marks]
- (c) (i) What is meant by the *half life of a radioactive substance*?
(ii) A radioactive substance has a half-life of 3.8 days.
Calculate its decay constant. [5 marks]
- (d) State **one** function of each of the following materials utilized by an operating nuclear reactor:

- (i) Boron rods,
(ii) U_{235} ,
(iii) Graphite moderators [3 marks]