

ELECTRICAL INSTALLATION AND MAINTENANCE WORK

EXAMINATION SCHEME

There will be two Papers, Papers 1 and 2 which will be a composite paper to be taken at one sitting.

PAPER 1: Will consist of forty (40) multiple choice objective questions to be answered in 45 minutes for 40 marks.

PAPER 2: Will be a 2 hour 15 minutes paper covering the entire syllabus and carrying a total of 100 marks. The paper will be in two sections; Sections A and B.

Section A: Will consist of three essay questions out of which candidates will be required to answer two questions in 1 hour for 50 marks.

Section B: Will be a test of practical work and will contain two questions drawn from Sections B and C of the syllabus. The questions will be answered in 1 hour 15 minutes for 50 marks.

SAMPLE QUESTIONS

1. Which of the following is **not** a source of danger in an electrical workshop?
 - A. Cable run over sharp objects
 - B. Ineffective earthing
 - C. Exposure of naked conductors
 - D. Installation of fire extinguisher
2. Stay wire is usually made of
 - A. zinc.
 - B. aluminum.
 - C. steel.
 - D. copper.
3. The armature windings of a d.c machine are connected to the
 - A. slip rings.
 - B. commulators.
 - C. terminal box.
 - D. stater winding.

4. Which of the following is responsible for single phasing in a three phase motor?
 - A. Loss of phase
 - B. Low voltage
 - C. High voltage
 - D. Low speed
5. The space factor of conduit installation is
 - A. 45%.
 - B. 40%.
 - C. 35%.
 - D. 30%.
6. Periodic inspection of motors, controls and other electrical equipment is important because it
 - A. gives advance notice of impending danger.
 - B. is required by the job standards.
 - C. is a requirement of supervision.
 - D. completes a day's work.

ESSAY

1. (a) (i) State **three** causes of hazards in the workshop. [3 marks]
 - (ii) State **two** ways of preventing hazards in the workshop. [2 marks]
- (b) List **four** safety equipment required in the workshop. [4 marks]
- (c) With the aid of a well labeled diagram, draw the power diagram and control diagram of a Direct-on-line starter connected to a 3-phase squared cage induction motor. [6 marks]
- (d) (i) What are armoured cables? [2 marks]
 - (ii) Give **one** example of an armoured cable. [1 mark]
 - (iii) Give **two** reasons for armouring. [2 marks]
- (e) (i) Explain briefly the term conduit wiring. [2 marks]
 - (ii) Outline the **three** main procedures for conduit installation. [3 marks]

2. (a) (i) Mention **two** types of test for domestic installation. [2 marks]
(ii) Why is it important to test domestic installation? [1 mark]
(iii) Mention **two** instruments for testing. [2marks]
- (b) With the aid of a well labeled diagram illustrate a wiring diagram of a point of light controlled by **2 Nos** switches independently. [4 marks]
- (c) (i) Define a.c motor. [2marks]
(ii) Give **two** applications of an a.c motor [2 marks]
(iii) Differentiate between d.c and a.c generator [3 marks]
- (d) (i) Define the term cable jointing. [2 marks]
(ii) Explain briefly the preparation of cable for joint and termination? [3 marks]
- (e) How could the test for short circuit be carried out? [3 marks]