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 impeding 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. [2 marks]
(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. [2 marks]
   (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]