

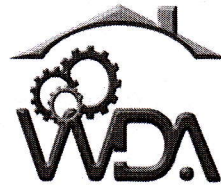
**CST&PWO – Domestic Electricity  
and Plumbing**

**T028**

**Friday, 24/11/2017**

**02:00 – 05:00 PM**

**WORKFORCE DEVELOPMENT AUTHORITY**



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**ADVANCED LEVEL NATIONAL EXAMINATIONS, 2017,  
TECHNICAL AND PROFESSIONAL STUDIES**

**EXAM TITLE:**

**DOMESTIC ELECTRICITY AND PLUMBING**

**OPTIONS: Construction (CST); Public Works (PWO)**

**DURATION: 3 hours**

**INSTRUCTIONS:**

The paper is composed of **the following sections:**

**Section I: Fifteen (15) compulsory questions. 55 marks**

**Section II: Attempt any three (3) out of five questions. 30 marks**

**Section III: Attempt any one (1) out of three questions. 15 marks**

**Note:**

***Every candidate is required to carefully comply with the above instructions. Penalty measures will be applied on their strict consideration.***

**Section I. Fifteen (15) Compulsory questions**

**55 marks**

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- 01.** Give any four actions to be taken upon finding a workmate receiving an electric shock. **(4 marks)**
- 02.** Give the three main parts of a typical screw driver. **(3 marks)**
- 03.** List out two types of insulator and two types of conductors. **(4 marks)**
- 04.** List out the three types of fuse. **(3 marks)**
- 05.** Define these terms:
- a.** Electrical resistance (R).
  - b.** Electric circuit. **(4 marks)**
- 06.** Differentiate an AC voltage to the DC voltage. **(4 marks)**
- 07.** Give the symbols of the following:
- a)** One-way switch.
  - b)** Intermediate switch.
  - c)** Incandescent lamp.
  - d)** Circuit breaker.
  - e)** Socket outlet with earth protection. **(5 marks)**
- 08.** Differentiate four different types of supply voltage levels. **(4 marks)**
- 09.** Give and explain two set of piping used in modern plumbing system. **(4 marks)**
- 10.** List out any four application of steel pipes. **(4 marks)**
- 11.** Name the three different groups of fittings used for plumbing. **(3 marks)**
- 12.** Give the application of PVC and SR plastic pipes. **(3 marks)**
- 13.** Differentiate the two basic types of faucet that are made for the kitchen. **(4 marks)**
- 14.** Distinguish the two most popular materials used for construction of sink units. **(3 marks)**
- 15.** Differentiate the three methods used to bend steel and copper pipes. **(3 marks)**

**Section II. Choose and answer any three (3) questions.**

**30 marks**

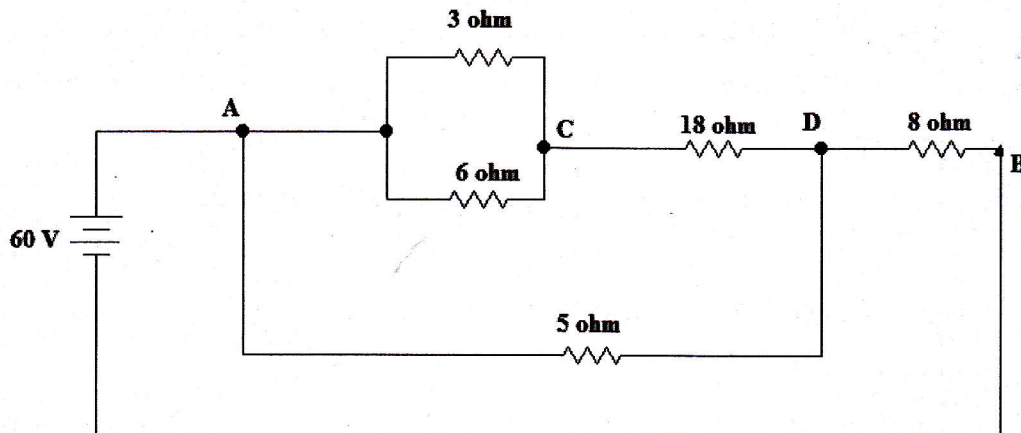
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- 16.** With clear sketch, describe a short and open circuits; hence give two important facts of each. **(10 marks)**
- 17.** A coil consists of 2000 turns of copper wire having a cross-sectional area of  $0.8\text{mm}^2$ . The mean length per turn is 80cm, and the resistivity of copper is  $0.02\mu\Omega\text{m}$ . Find the resistance of the coil and power absorbed by the coil when connected across 110V dc supply. **(10 marks)**
- 18.** Explain step by step how to cut steel pipe using:
- a) hacksaw.
  - b) Pipe cutter. **(10 marks)**
- 19.** (a) Classify the tools used in plumbing and give examples.  
(b) Distinguish a pressure pipe and a non-pressure pipe. **(10 marks)**
- 20.** (a) With clear examples, explain the pipe fittings used in plumbing trades.  
(b) Why the ratchet-style die stock is more preferred than chaser die stock. **(10 marks)**

**Section III. Choose and answer any one (1) question.**

**15 marks**

- 21.** Calculate the effective resistance of the following combination of resistance and the voltage drop across each resistance when a potential difference of 60V is applied between points A and B.



**(15 marks)**

- 22.** (a) State the Ohm's law.  
(b) Describe a gimlet tool.  
(c) What is necessary to prevent people receiving an electrical shock accidentally.

**(15 marks)**

- 23.** (a) Give and explain four types of saws.  
(b) Give the three common design or types of valves used in plumbing.  
(c) Why the threads on iron pipe fittings are tapered?

**(15 marks)**