

## **Unit 1–Contract Documents and Drawings**

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### **MULTIPLE CHOICE**

1. Which MasterFormat specification division does general electrical work fall under?
  - a. Division 11
  - b. Division 23
  - c. Division 26
  - d. Division 33

ANS: C                      PTS: 1                      DIF: Easy                      REF: EWI p. 2  
BLM: Remember

2. For what type of payment agreement is a contractor required to complete a job for a fixed dollar amount, regardless of any problems that may be encountered?
  - a. lump sum
  - b. unit price
  - c. cost plus fee
  - d. net sum

ANS: A                      PTS: 1                      DIF: Easy                      REF: EWI p. 3  
BLM: Remember

3. Which drawing shows the electrical ratings and location of the two new transformers feeding the building?
  - a. drawing E1
  - b. drawing E4
  - c. drawing E6
  - d. drawing E8

ANS: A                      PTS: 1                      DIF: Moderate                      REF: EWI p. 5  
BLM: Higher Order

4. What type of drawing shows the vertical faces of a building?
  - a. one-line diagram
  - b. elevation
  - c. site plan
  - d. floor plan

ANS: B                      PTS: 1                      DIF: Easy                      REF: EWI p. 5  
BLM: Remember

5. On which drawing are the details about the cable tray and the conductor placement in the cable tray?
  - a. E4
  - b. E6
  - c. E9
  - d. E10

ANS: C                      PTS: 1                      DIF: Moderate                      REF: EWI p. 7  
BLM: Higher Order

6. A measurement of 50 mm is taken from drawing E3. What length does this represent in the actual building?
- a. 50 mm
  - b. 500 mm
  - c. 5 m
  - d. 50 m

ANS: C

Drawing E3

E3 scale is 1:100,  $50 \text{ mm} \times 100 = 5000 \text{ mm} = 5 \text{ m}$

PTS: 1

DIF: Challenging

REF: EWI p. 7

BLM: Higher Order

7. Which drawings contain the information about the building's power distribution?
- a. elevation drawings
  - b. electrical detail drawings
  - c. lighting and power drawings
  - d. riser diagrams

ANS: D

Drawing E6

PTS: 1

DIF: Moderate

REF: EWI p. 7

BLM: Higher Order

8. What type of scale uses feet and inches?
- a. architectural
  - b. engineering
  - c. metric
  - d. civil

ANS: A

PTS: 1

DIF: Easy

REF: EWI p. 7

BLM: Remember

9. According to the Electrical Elevations and Details Drawing E8, what is the width of MCC-101?
- a. 50mm
  - b. 100mm
  - c. 1m
  - d. 5m

ANS: C

Drawing E4

E4 scale is 1:20,  $50 \text{ mm} \times 20 = 1000 \text{ mm} = 1 \text{ m}$

PTS: 1

DIF: Challenging

REF: EWI p. 7

BLM: Higher Order



10. Refer to the symbol. What does it represent in the industrial building's drawings?
- thermostat
  - motorized damper
  - combination starter
  - unfused disconnect switch

ANS: C

Drawing E1

PTS: 1

DIF: Moderate

REF: EWI p. 7

BLM: Higher Order



11. Refer to the symbol. What does it represent in the industrial building's drawings?
- contactor
  - combination starter
  - switch and fuse
  - fused disconnect

ANS: B

Drawing E1

PTS: 1

DIF: Moderate

REF: EWI p. 7

BLM: Higher Order

12. When pricing a job, which of the following factors would be considered to adjust the standard labour units?
- number of apprentices
  - job site conditions
  - lengths of conductors
  - number of devices

ANS: B

PTS: 1

DIF: Easy

REF: EWI p. 10

BLM: Remember

13. After the contract is awarded, which document authorizes a contractor to add an extra receptacle?
- Change Order
  - Material Take-off
  - Amended Electrical Floor Plan
  - Job Specifications

ANS: A

PTS: 1

DIF: Easy

REF: EWI p. 11

BLM: Remember

14. What designation satisfies the safety standard requirements for all electrical equipment installed in Canada?
- a. inspected by ESA
  - b. ULC approved
  - c. OHSA compliant
  - d. made in Canada

ANS: B

PTS: 1

DIF: Easy

REF: EWI p. 12

BLM: Remember

15. An electrical job has been completed and has passed the final inspection. When can additional lighting circuits be added?
- a. when there is a new electrical permit
  - b. when the inspector has given approval
  - c. when there is a Request for Change Order
  - d. any time they are required

ANS: A

PTS: 1

DIF: Moderate

REF: EWI p. 12

BLM: Higher Order

## SHORT ANSWER

1. Briefly describe the difference between an addendum and a change order.

ANS:

An addendum is an addition or clarification issued to bidders *before* the bidding is closed, whereas a change order is a change made to the contract *after* the contract has been awarded.

PTS: 1

DIF: Easy

REF: EWI p. 3|EWI p. 11

BLM: Remember

2. According to the industrial building's specifications, what is the requirement for bonding in raceways?

ANS:

According to Technical Specification 26 05 33, a separate bonding conductor must be provided in all non-metallic raceways.

PTS: 1

DIF: Moderate

REF: EWI p. 5

BLM: Higher Order

3. What do the specifications say about the electrical contractor's responsibility for the telephone system?

ANS:

Referring to Technical Specification 27 30 00, the contractor must supply and install a complete system of empty conduits (minimum 21 mm) with pull strings, terminal cabinets, pull boxes, and outlets as shown on the drawings or described herein.

PTS: 1

DIF: Moderate

REF: EWI p. 5

BLM: Higher Order

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4. What are shop drawings used for?

ANS:

They are provided by equipment manufacturers to show details of custom-made equipment for a specific job.

PTS: 1

DIF: Easy

REF: EWI p. 7

BLM: Remember

5. Outline the steps involved when providing a job estimate.

ANS:

The main steps include preparing a material take-off, tabulating and pricing, and then summarizing the costs. Material take-offs mean counting, measuring, and listing all of the material, devices, and equipment required to complete the installation and fulfill the contract. Pricing means assigning actual individual costs for each item, as well as the labour required to install everything. Standard labour units are usually used, as established by various organizations, based on specified working conditions. These units would be adjusted according to actual job conditions. Summarizing the job estimate will also include other costs, such as overhead, tool and equipment rentals, travel, and, of course, profit.

PTS: 1

DIF: Easy

REF: EWI pp. 9-11

BLM: Remember

6. What is required if unapproved equipment is to be used on the job?

ANS:

Arrangements must be made for field approval by the inspection authority before it can be installed.

PTS: 1

DIF: Easy

REF: EWI p. 12

BLM: Remember