CSC 3210

Computer Organization and Programming

Lab 4

Answer Sheet

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Debug through each line of code and explain the register content.

Then fill out the following information.

**Write and run a program to evaluate the following expression:**

**AL = (AL – DL) + CL – BL**

Graphical user interface

Description automatically generated

**Success Build – Screen Cap**

Graphical user interface

Description automatically generated

**Start Debug – Screen Cap**

1. *mov 0 to AH register*

* Line Number: **12**
* Instruction: **mov AH, 0**
* Register Values: EAX = 0055**00**60 | AH = 00 (0 in decimal)
* Screenshot: Graphical user interface

  Description automatically generated
* Explanation: **Clear AH.**

1. *mov 245 to AL register*

* Line Number: **13**
* Instruction: **mov AL, 245**
* Register Values: EAX = 005500**F5** | AL = F5 (245 in decimal)
* Screenshot: A screenshot of a computer

  Description automatically generated with medium confidence
* Explanation: **Load 245 in AL.**

1. *mov 41 to BL register*

* Line Number: **14**
* Instruction: **mov BL, 41**
* Register Values: EBX = 003850**29** | BL = 29 (41 in decimal)
* Screenshot: Graphical user interface

  Description automatically generated
* Explanation: **Load 41 in BL.**

1. *mov 11 to CL register*

* Line Number: **15**
* Instruction: **mov CL, 11**
* Register Values: ECX = 00D100**0B** | CL = 0B (11 in decimal)
* Screenshot: Graphical user interface

  Description automatically generated
* Explanation: **Load 11 in CL.**

1. *mov 215 to DL register*

* Line Number: **16**
* Instruction: **mov DL, 215**
* Register Values: EDX = 000D10**D7** | DL = D7 (215 in decimal)
* Screenshot: Graphical user interface

  Description automatically generated
* Explanation: **Load 215 in DL.**

1. *sub DL from and going into AL register*

* Line Number: **17**
* Instruction: **sub AL, DL**
* Register Values: EAX = 005500**1E** | AL = 1E
* Screenshot: Graphical user interface

  Description automatically generated
* Explanation: **AL = AL – DL.**
* **1E = F5 – D7 (30 = 245 – 215 [in decimal format])**

1. *add CL from and going into AL register*

* Line Number: **18**
* Instruction: **add AL, CL**
* Register Values: EAX = 005500**29** | AL = 29
* Screenshot: Graphical user interface

  Description automatically generated
* Explanation: **AL = AL – CL.**
* **29 = 1E + 0B (41 = 30 + 11 [in decimal format])**

1. *sub BL from and going into AL register*

* Line Number: **19**
* Instruction: **sub AL, BL**
* Register Values: EAX = 005500**00** | AL = 00
* Screenshot: Graphical user interface

  Description automatically generated
* Explanation: **AL = AL – BL.**
* **00 = 29 – 29 (0 = 41 – 41 [in decimal format])**

A screenshot of a computer

Description automatically generated with medium confidence

**End Debug – Screen Cap**