ELE 3510 HW13 Name_____

1 - Calculate the minimum size required for the On-Chip memory block inside the Character buffer block if we quadrupled the size (W and L) of the characters in pixels.(assume a 640x480 display) 25pts

Character block buffer holds **asci** characters (1 byte each)

At 3x each character would take up 32 pixels x 32 pixels on the screen

The maximum number of characters that fit on a 640 x 480 display would be 20 x 15 = 300

Each character is 1 byte (ascii)

300 bytes

_____ bytes

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2 - Calculate the minimum size required for the SDRAM used in our pixel buffer example from class.(assume no backbuffer support and a 4x scaler block instead of the examples 2x scaler) (assume a 640x480 display) 25pts

pixel buffer holds pixel information

16bits / pixel = 2bytes/pixel

The maximum number of independent pixels that fit on a 640 x 480 display with the 4x block in the design is 160 x 120 = 19,200

2 bytes/pixel

38,400 bytes

_____ bytes

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3 – Modify your Nios_Basic processor hardware to change the memory from 12000B to 150000B and create a new BSP, but DO NOT check the enable_small_C_library box (allows access to scanf()).
Write a program to request 2 integer resistor values and a character (s or p), then calculate the parallel or series resistance depending on the character entered (s or p). Provide your code and examples below 50pts