CSE 30 – ARM ldr/str exercises

1. What is the value of `r0` after the following code? The operations are independent from each other. Assume `r0` originally has `0xbeef1234`

Memory Address	Value
0xabcdef03	**0xba**
0xabcdef02	**0xbe**
0xabcdef01	**0xfa**
0xabcdef00	**0xce**

```
ldr r1, =0xabcdef00
ldrsh r0, [r1]
```

```
ldr r1, =0xabcdef00
ldrh r0, [r1]
```

```
ldr r1, =0xabcdef02
ldrsh r0, [r1]
```

```
ldr r1, =0xabcdef00
ldrb r0, [r1, 3]
```

```
ldr r1, =0xabcdef00
ldr r0, [r1]
```

2. What is the value of memory after the following code? The operations are independent from each other. Assume `r0` originally has `0xbeef1234`

Memory Address	Value
0xabcdef03	**0xba**
0xabcdef02	**0xbe**
0xabcdef01	**0xfa**
0xabcdef00	**0xce**

```
ldr r1, =0xabcdef00
str r0, [r1]
```

```
ldr r1, =0xabcdef00
strh r0, [r1, 2]
```

```
ldr r1, =0xabcdef02
strb r0, [r1, 1]
```

3. Translate the following C code into ARM

```
//includes omitted
int x = 20;
int y;
char a[100];
int b[100];

int main(){
  for(int i = 0; i < 100; ++i){
     a[i] = i;
     b[i] += a[i];
}
```

```
.cpu cortex-a53
.syntax unified
.arch armv6
```