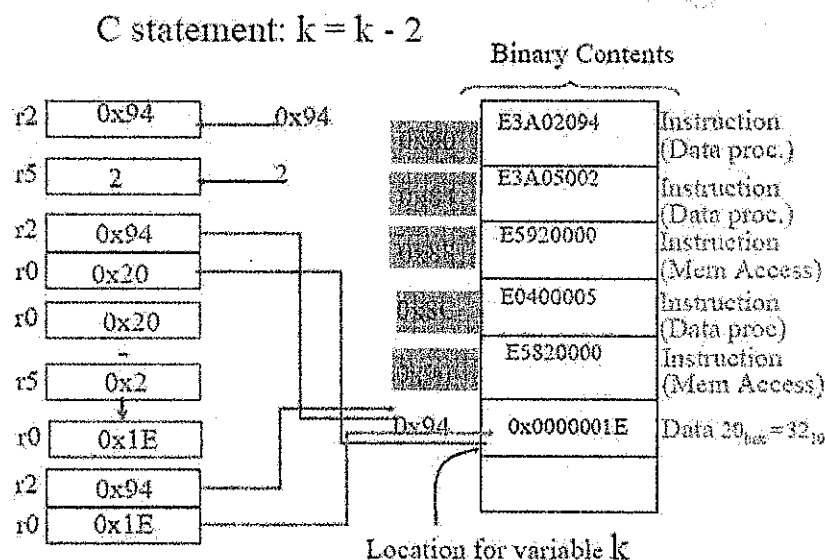


Note: All questions are compulsory. Each question carries equal marks. Carrying of mobile phone during examinations will be treated as case of unfair means.

1. (a) List all the ARM ISA Features. Write the assembly code for following binary contents in memory locations



- (b) What is the Layout of ARM Assembly Program? What are the assembler directives required for Assembly Program?

2. (a) Explain the following Data Processing Instructions:

ADD r0, r1, r2	AND r0, r1, r2	CMP r1, r2	MOV r0, r2
ADC r0, r1, r2	ORR r0, r1, r2	CMN r1, r2	MVN r0, r2
SUB r0, r1, r2	EOR r0, r1, r2	TST r1, r2	
SBC r0, r1, r2	BIC r0, r1, r2	TEQ r1, r2	
RSB r0, r1, r2			
RSC r0, r1, r2			

- (b) WAP to copy the data from TABLE 1 to TABLE 2 using Base plus offset Addressing

3. (a) Write the assembly code for following conditional execution

- i.

```
if (r0 != 5) then
    r1 := r1 + r0 - r2
```
- ii.

```
if ( (a==b) && (c==d) ) then e := e + 1;
```

(b) WAP to:

- i. Print "Hello JUIT!" on the on the console window
- ii. Covert 32-bit word as 8 hex digits as ASCII characters

4. WAP to compute Unsigned 32/32-Bit Divide by Newton-Raphson for following memory log

table for 32 by 32 bit Newton Raphson divisions
 table[0] = 255
 table[i] = (1 << 14)/(64+i) for i=1,2,3,...,63
 DCB 0xff, 0xfc, 0xf8, 0xf4, 0xf0, 0xed, 0xea, 0xe6
 DCB 0xe3, 0xe0, 0xdd, 0xda, 0xd7, 0xd4, 0xd2, 0xcf
 DCB 0xcc, 0xca, 0xc7, 0xc5, 0xc3, 0xc0, 0xbe, 0xbc
 DCB 0xba, 0xb8, 0xb6, 0xb4, 0xb2, 0xb0, 0xae, 0xac
 DCB 0xaa, 0xa8, 0xa7, 0xa5, 0xa3, 0xa2, 0xa0, 0x9f
 DCB 0x9d, 0x9c, 0x9a, 0x99, 0x97, 0x96, 0x94, 0x93
 DCB 0x92, 0x90, 0x8f, 0x8e, 0x8d, 0x8c, 0x8a, 0x89
 DCB 0x88, 0x87, 0x86, 0x85, 0x84, 0x83, 0x82, 0x81

5. WAP to compute Base-Two Exponentiation for following memory log

$$2^d = 2^a \times \exp((d - a) \ln 2)$$

uexp2_table
 ; table[i]=round(2^31*exp2(a)) where a=(i+0.5)/32
 DCD 0x8164d1f4, 0x843a28c4, 0x871f6197, 0x8a14d575
 DCD 0x8d1adf5b, 0x9031dc43, 0x935a2b2f, 0x96942d37
 DCD 0x99e04593, 0x9d3ed9a7, 0xa0b05110, 0xa43515ae
 DCD 0xa7cd93b5, 0xab7a39b6, 0xaf3b78ad, 0xb311c413
 DCD 0xb6fd91e3, 0xbaff5ab2, 0xbf1799b6, 0xc346ccda
 DCD 0xc78d74c9, 0xcbec14ff, 0xd06333db, 0xd4f35aac
 DCD 0xd99d15c2, 0xde60f482, 0xe33f8973, 0xe8396a50
 DCD 0xed4f301f, 0xf281773c, 0xf7d0df73, 0xfd3e0c0d