

First question:

first i used 'size' command on the file -

<i>text</i>	<i>data</i>	<i>bss</i>	<i>dec</i>	<i>hex</i>	<i>filename</i>
<i>1797</i>	<i>628</i>	<i>10305568</i>	<i>10307993</i>	<i>9d4999</i>	<i>a.out</i>

than i used 'nm' command (only relevant are copied) -

```
0000000000bc5060 B globBuf //1
0000000000201010 D primes //2
0000000000000665 t square //3
000000000000067b t doCalc //6
00000000000006dd T main //8
0000000000201020 d key.2397 //9
0000000000201060 b mbuf.2398 //10
```

explanation: B/b is uninitialized data section, D/d is initialized data section, T/t is text (code) section.

and finally i used 'objdump' command (only relevant are copied) -

```
665: 55          push  %rbp //4
666: 48 89 e5    mov   %rsp,%rbp //4
669: 89 7d ec    mov   %edi,-0x14(%rbp) //4
```

```
676: 8b 45 fc    mov   -0x4(%rbp),%eax //5
679: 5d          pop   %rbp //5
67a: c3          retq  //5
```

```
67b: 55          push  %rbp //7
67c: 48 89 e5    mov   %rsp,%rbp //7
67f: 48 83 ec 20 sub   $0x20,%rsp //7
683: 89 7d ec    mov   %edi,-0x14(%rbp) //7
```

```
6dd: 55          push  %rbp //11
6de: 48 89 e5    mov   %rsp,%rbp //11
6e1: 48 83 ec 10 sub   $0x10,%rsp //11
6e5: 89 7d fc    mov   %edi,-0x4(%rbp) //11
6e8: 48 89 75 f0 mov   %rsi,-0x10(%rbp) //11
```

explanation: every local variable is pushed to the right place in the stack according to its place in the code, rbp is – base pointer, and rsp is – stack pointer.

Final answers:

```
char globBuf[65536]; /* 1. Where is allocated? */ uninitialized data section (known as BSS )
int primes[] = { 2, 3, 5, 7 }; /* 2. Where is allocated? */ initialized data section
square(int x) /* 3. Where is allocated? */ text (code) section
int result; /* 4. Where is allocated? */ stack current frame (square())
return result; /* 5. How the return value is passed? */ via the register (rbp)
doCalc(int val) /* 6. Where is allocated? */ text (code) section
int t; /* 7. Where is allocated? */ stack current frame (doCalc())
main(int argc, char* argv[]) /* 8. Where is allocated? */ text (code) section
static int key = 9973; /* 9. Where is allocated? */ initialized data section
static char mbuf[10240000]; /* 10. Where is allocated? */ uninitialized data section (known as BSS )
char* p; /* 11. Where is allocated? */ stack current frame (main())
```