Question 1:

```
[root@localhost ~]# fdisk -l
Disk /dev/sda: 20 GiB, 21474836480 bytes, 41943040 sectors
Disk model: VMware Virtual S
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x2d828556

Device     Boot    Start      End  Sectors Size Id Type
/dev/sda1  *        2048  2099199  2097152   1G 83 Linux
/dev/sda2         2099200  6293503  4194304   2G 82 Linux swap / Solaris
/dev/sda3         6293504 41943039 35649536  17G 83 Linux


Disk /dev/sdb: 20 GiB, 21474836480 bytes, 41943040 sectors
Disk model: VMware Virtual S
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
```

Question 2:

```
[root@localhost ~]# fdisk /dev/sdb

Welcome to fdisk (util-linux 2.37.4).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.

Device does not contain a recognized partition table.
Created a new DOS disklabel with disk identifier 0x11ea5e75.
```

```
Command (m for help): n
Partition type
   p   primary (0 primary, 0 extended, 4 free)
   e   extended (container for logical partitions)
Select (default p): e
Partition number (1-4, default 1):
First sector (2048-41943039, default 2048):
Last sector, +/-sectors or +/-size{K,M,G,T,P} (2048-41943039, default 41943039): +6G

Created a new partition 1 of type 'Extended' and of size 6 GiB.

Command (m for help): w
The partition table has been altered.
Calling ioctl() to re-read partition table.
Syncing disks.

[root@localhost ~]# fdisk /dev/sdb

Welcome to fdisk (util-linux 2.37.4).
Changes will remain in memory only, until you decide to write them.
Be careful before using the write command.


Command (m for help): n
Partition type
   p   primary (0 primary, 1 extended, 3 free)
   l   logical (numbered from 5)
Select (default p): l

Adding logical partition 5
First sector (4096-12584959, default 4096):
Last sector, +/-sectors or +/-size{K,M,G,T,P} (4096-12584959, default 12584959): +2G

Created a new partition 5 of type 'Linux' and of size 2 GiB.

Command (m for help): w
The partition table has been altered.
```

Question 3: yes it felt the changes ,the file is listed

```
[root@localhost ~]# cat /proc/partitions
major minor  #blocks   name

   8       0   20971520 sda
   8       1    1048576 sda1
   8       2    2097152 sda2
   8       3   17824768 sda3
   8      16   20971520 sdb
   8      17          1 sdb1
   8      21    2097152 sdb5
  11       0     104728 sr0
  11       1    9075712 sr1
[root@localhost ~]#
```

Question 4:

Bonus= mkfs.ext4 -b 2048 -i 8192 /dev/sdb5

```
[root@localhost ~]# mkfs.ext4 /dev/sdb5
mke2fs 1.46.5 (30-Dec-2021)
Creating filesystem with 524288 4k blocks and 131072 inodes
Filesystem UUID: 963142d1-fef3-4ee5-a154-5e8449cf4663
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912

Allocating group tables: done
Writing inode tables: done
Creating journal (16384 blocks): done
Writing superblocks and filesystem accounting information: done
```

Question 5 &6:

```
[root@localhost ~]# mkdir /data
[root@localhost ~]# e2label /dev/sdb5 data
[root@localhost ~]#
```

Question 7:

```
#
# /etc/fstab
# Created by anaconda on Mon Aug  7 20:27:58 2023
#
# Accessible filesystems, by reference, are maintained under '/dev/disk/'.
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.
#
# After editing this file, run 'systemctl daemon-reload' to update systemd
# units generated from this file.
#
UUID=84587da3-5c04-4395-87a3-e541705fe7bf /                              xfs      defaults >
UUID=0d2e8296-4591-4008-8ce9-cc65d39e863c /boot                         xfs      defaults >
UUID=35df8398-d8ea-4ded-844b-0ab426047f8a none                          swap     defaults >

LABEL=data /data ext4 defaults 0 0
```

Question 8:

```
[root@localhost ~]# mount -av
/                               : ignored
/boot                           : already mounted
none                            : ignored
mount: /data does not contain SELinux labels.
       You just mounted a file system that supports labels which does not
       contain labels, onto an SELinux box. It is likely that confined
       applications will generate AVC messages and not be allowed access to
       this file system.  For more details see restorecon(8) and mount(8).
/data                           : successfully mounted
```

Question 9:

```
[root@localhost ~]# free -m
              total        used        free      shared  buff/cache   available
Mem:            744         612          86           3         162         131
Swap:          2047         516        1531
[root@localhost ~]#
```

Question 10:

```
[root@localhost ~]# touch swapfile
[root@localhost ~]# dd if=/dev/sdb of=/swapfile bs=1M count=512
512+0 records in
512+0 records out
536870912 bytes (537 MB, 512 MiB) copied, 1.37289 s, 391 MB/s
[root@localhost ~]# chmod 600 /swapfile
```

Question 11:

```
[root@localhost ~]# chmod 600 /swapfile
[root@localhost ~]# mkswap /swapfile
mkswap: /swapfile: warning: don't erase bootbits sectors
        (dos partition table detected). Use -f to force.
Setting up swapspace version 1, size = 512 MiB (536866816 bytes)
no label, UUID=f35ad140-2c34-4ca0-b5db-a24a1fd1d91e
[root@localhost ~]# swapon /swapfile
```

To make it persistent

```
#
# /etc/fstab
# Created by anaconda on Mon Aug  7 20:27:58 2023
#
# Accessible filesystems, by reference, are maintained under '/dev/disk/'.
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info.
#
# After editing this file, run 'systemctl daemon-reload' to update systemd
# units generated from this file.
#
UUID=84587da3-5c04-4395-87a3-e541705fe7bf /                       xfs     defaults
     0 0
UUID=0d2e8296-4591-4008-8ce9-cc65d39e863c /boot                   xfs     defaults
     0 0
UUID=35df8398-d8ea-4ded-844b-0ab426047f8a none                    swap    defaults
     0 0

LABEL=data /data ext4 defaults 0 0



/swapfile none swap sw 0 0
~
~
```

Question 12:

```
[root@localhost ~]# swapon -s
Filename                                Type            Size            Used            Priority
/dev/sda2                               partition       2097148         526272          -2
/swapfile                               file            524284          0               -3
[root@localhost ~]#
```