Exam Code: HP0-093

Exam Name: HP-UX High Availability

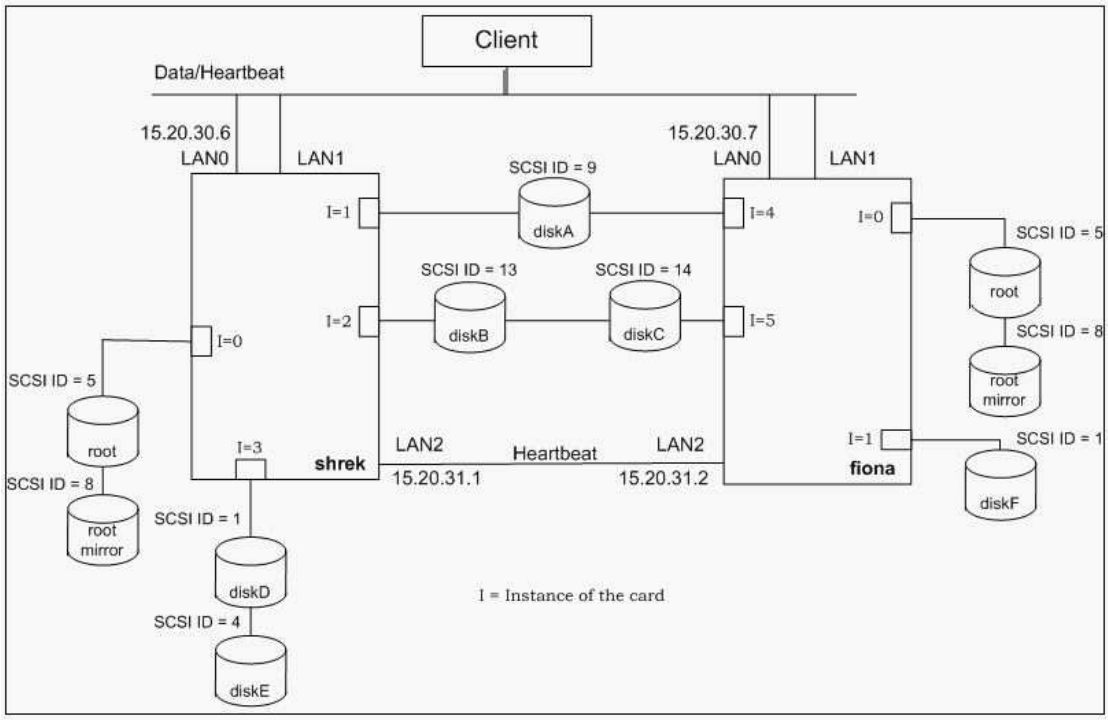
Vendor: HP

Version: DEMO

Part: A

1: Use the information provided in the Cluster Configuration Diagram to answer the following question.

Which commands can be used to build a cluster configuration file under /etc/cmcluster called cluster.ascii. Select TWO.



A.cmquerycl -C /etc/cmcluster/cluster.ascii -n 15.20.30.6 -n 15.20.30.7

B.cmquerycl -C /etc/cmcluster/cluster.ascii -n 15.20.30.6 -n 15.20.30.7 -v

C.cmmakecl -C /etc/cmcluster/cluster.ascii -n shrek -n fiona

D.cmmakecl -C /etc/cmcluster/cluster.ascii -n shrek -n fiona -v

E.cmquerycl -C /etc/cmcluster/cluster.ascii -n shrek -n fiona

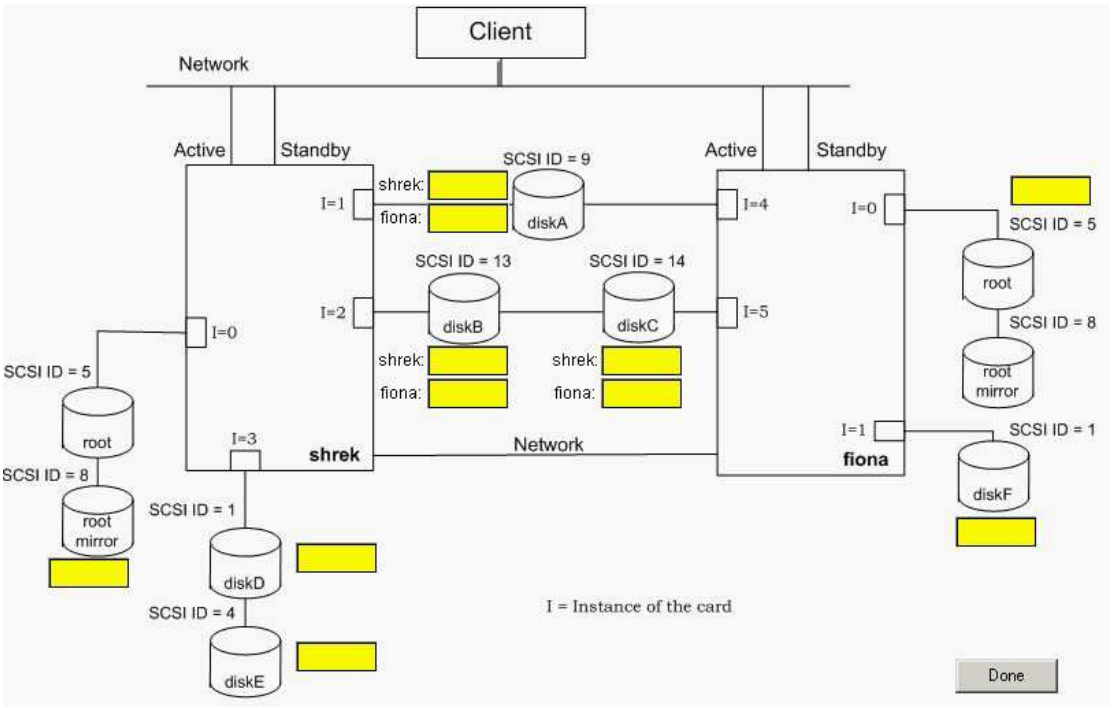
F.cmquerycl -C /etc/cmcluster/cluster.ascii -n shrek -n fiona -v

Correct Answers: E F

2: Click the Cluster Configuration Diagram button to answer this item.

Complete the following task using the information in the Cluster Configuration Diagram and the command outputs and files under the Exhibit button below. You may not need all exhibits.

Fill in the indicated disk device files on the Cluster Configuration Diagram using c?t?d? format.


Client
Network
Active
Standby
Active
Standby
SCSI ID = 9
shrek:
fiona:
I=1
diskA
I=4
I=0
SCSI ID = 5
root
SCSI ID = 13
SCSI ID = 14
I=2
diskB
diskC
I=5
SCSI ID = 8
root
mirror
I=0
shrek:
fiona:
shrek:
fiona:
SCSI ID = 5
root
I=3
shrek
Network
I=1
fiona
SCSI ID = 1
diskF
SCSI ID = 8
root
mirror
SCSI ID = 1
diskD
SCSI ID = 4
diskE
I = Instance of the card
Done

```
--- Volume groups ---
VG Name                     /dev/vg00
VG Write Access             read/write
VG Status                   available
Max LV                      255
Cur LV                      9
Open LV                     9
Max PV                      16
Cur PV                      1
Act PV                      1
Max PE per PV               2000
VGDA                        2
PE Size (Mbytes)            4
Total PE                    1023
Alloc PE                    1023
Free PE                     0
Total PVG                   0
Total Spare PVs             0
Total Spare PVs in use      0

VG Name                     /dev/vgapp1
VG Write Access             read/write
VG Status                   available
Max LV                      255
Cur LV                      0
Open LV                     0
Max PV                      16
Cur PV                      2
Act PV                      2
Max PE per PV               1016
VGDA                        4
PE Size (Mbytes)            4
Total PE                    1016
Alloc PE                    0
Free PE                     1016
Total PVG                   0
Total Spare PVs             0
Total Spare PVs in use      0
```

```
CLUSTER      STATUS
drmworks     up

  NODE          STATUS       STATE
  shrek         up           running

    PACKAGE      STATUS        STATE
PKG_SWITCH   NODE
    oracle1      up            running
enabled      shrek

  NODE          STATUS       STATE
  fiona         up           running

    PACKAGE      STATUS        STATE
PKG_SWITCH   NODE
    oracle2      up            running
enabled      fiona
```

```
# ioscan -funC disk

Class      I  H/W Path    Driver      S/W
State H/W Type  Description
============================================
========================
disk       0  8/0.5.0     sdisk       CLAIMED
DEVICE     SEAGATE ST34572WC
/dev/dsk/c0t5d0   /dev/rdsk/c0t5d0
disk       1  8/0.8.0     sdisk       CLAIMED
DEVICE     SEAGATE ST34573WC
/dev/dsk/c0t8d0   /dev/rdsk/c0t8d0
disk       3  8/4.9.0     sdisk       CLAIMED
DEVICE     SEAGATE ST32550W
/dev/dsk/c1t9d0   /dev/rdsk/c1t9d0
disk       4  8/8.13.0    sdisk       CLAIMED
DEVICE     SEAGATE ST32171W
/dev/dsk/c2t13d0   /dev/rdsk/c2t13d0
disk       5  8/8.14.0    sdisk       CLAIMED
DEVICE     SEAGATE ST32171N
/dev/dsk/c2t14d0   /dev/rdsk/c2t14d0
disk       6  8/0.1.0     sdisk       CLAIMED
DEVICE     SEAGATE ST32171W
/dev/dsk/c3t1d0   /dev/rdsk/c3t1d0
disk       7  8/0.4.0     sdisk       CLAIMED
DEVICE     SEAGATE ST32171N
/dev/dsk/c3t4d0   /dev/rdsk/c3t4d0
disk       2  8/16/5.2.0  sdisk       CLAIMED
DEVICE     TOSHIBA CD-ROM XM-5701TA
/dev/dsk/c4t2d0   /dev/rdsk/c4t2d0
```

```
# @(#)B.11.11_LR
# /etc/lvmrc
#
# This file is sourced by /sbin/lvmrc. This file contains the flags
# AUTO_VG_ACTIVATE and RESYNC which are required by the script in /sbin/lv
# These flags must be set to valid values (see below).
#

#
# The activation of Volume Groups may be customized by setting the
# AUTO_VG_ACTIVATE flag to 0 and customizing the function
# custom_vg_activation()
#

#
#     To disable automatic volume group activation,
#     set AUTO_VG_ACTIVATE to 0.
#

AUTO_VG_ACTIVATE=0

#
#     The variable RESYNC controls the order in which
#     Volume Groups are resyncronized. Allowed values
#     are:
#           "PARALLEL"  - resync all VGs at once.
#           "SERIAL"    - resync VGs one at a time.
#
#     SERIAL will take longer but will have less of an
#     impact on overall I/O performance.
#

RESYNC="SERIAL"


#
#     Add customized volume group activation here.
#     A function is available that will synchronize all
#     volume groups in a list in parallel. It is
#     called parallel_vg_sync.
#
#     This routine is only executed if AUTO_VG_ACTIVATE

#     equals 0.
#

custom_vg_activation()
{
      # e.g. /sbin/vgchange -a y -s
      #      parallel_vg_sync "/dev/vg00 /dev/vg01"
      #      parallel_vg_sync "/dev/vg02 /dev/vg03"

      return 0
}

#
# The following functions should require no additional customization:
#

parallel_vg_sync()
{
      for VG in $*
      do
            {
            if /sbin/vgsync $VG > /dev/null
            then
                  echo "Resynchronized volume group $VG"
            fi
            } &
      done
}
```

```
/dev/vg00
/dev/dsk/c0t5d0
/dev/dsk/c0t8d0
/dev/vgapp1
/dev/dsk/c3t1d0
/dev/dsk/c3t4d0
```

```
crw-r-----   1 root   sys   64 0x000000 Jun
14 11:04 /dev/vg00/group
crw-r--r--   1 root   sys   64 0x0a0000 Jun
15 08:47 /dev/vgapp1/group
```

```
# **********************************************************************
# ********* HIGH AVAILABILITY CLUSTER CONFIGURATION FILE ***************
# ***** For complete details about cluster parameters and how to    ****
# ***** set them, consult the cmquerycl(1m) manpage or your manual. ****
# **********************************************************************

# Enter a name for this cluster.  This name will be used to identify the
# cluster when viewing or manipulating it.

CLUSTER_NAME                    drmworks


# Cluster Lock Device Parameters.  This is the volume group that
# holds the cluster lock which is used to break a cluster formation
# tie.  This volume group should not be used by any other cluster
# as cluster lock device.

FIRST_CLUSTER_LOCK_VG           /dev/vg01


# Definition of nodes in the cluster.
# Repeat node definitions as necessary for additional nodes.

NODE_NAME               shrek
  NETWORK_INTERFACE             lan0
    HEARTBEAT_IP        15.20.30.6
  NETWORK_INTERFACE             lan1
  NETWORK_INTERFACE     lan2
    HEARTBEAT_IP     15.20.31.1
  FIRST_CLUSTER_LOCK_PV         /dev/dsk/c1t9d0
# List of serial device file names
# For example:
# SERIAL_DEVICE_FILE            /dev/tty0p0

# Possible standby Network Interfaces for lan0: lan1.

NODE_NAME               fiona
  NETWORK_INTERFACE             lan0
    HEARTBEAT_IP        15.20.30.7
  NETWORK_INTERFACE             lan1
  NETWORK_INTERFACE             lan2
    HEARTBEAT_IP        15.20.31.2
  FIRST_CLUSTER_LOCK_PV         /dev/dsk/c4t9d0
# List of serial device file names
# For example:
# SERIAL_DEVICE_FILE            /dev/tty0p0

# Possible standby Network Interfaces for lan0: lan1.


# Cluster Timing Parmeters (microseconds).

HEARTBEAT_INTERVAL              3000000
NODE_TIMEOUT                    6000000


# Configuration/Reconfiguration Timing Parameters (microseconds).

AUTO_START_TIMEOUT              600000000
NETWORK_POLLING_INTERVAL        2000000

# Package Configuration Parameters.
# Enter the maximum number of packages which will be configured in the cluster.
# You can not add packages beyond this limit.
# This parameter is required.

MAX_CONFIGURED_PACKAGES         10



# List of cluster aware Volume Groups. These volume groups will
# be used by package applications via the vgchange -a e command.
# For example:
# VOLUME_GROUP                  /dev/vgdatabase.
# VOLUME_GROUP                  /dev/vg02.
# List of cluster aware Volume Groups. These volume groups will
# be used by package applications via the vgchange -a e command.
# For example:
# VOLUME_GROUP                  /dev/vgdatabase.
# VOLUME_GROUP                  /dev/vg02.

VOLUME_GROUP                    /dev/vg01
VOLUME_GROUP                    /dev/vg02
```

```
Cluster Name    Node Name
drmworks
                shrek
                fiona
```

```
--- Volume groups ---
VG Name                     /dev/vg00
VG Write Access             read/write
VG Status                   available
Max LV                      255
Cur LV                      9
Open LV                     9
Max PV                      16
Cur PV                      1
Act PV                      1
Max PE per PV               2000
VGDA                        2
PE Size (Mbytes)            4
Total PE                    1023
Alloc PE                    1023
Free PE                     0
Total PVG                   0
Total Spare PVs             0
Total Spare PVs in use      0

VG Name                     /dev/vgpayroll
VG Write Access             read/write
VG Status                   available
Max LV                      255
Cur LV                      0
Open LV                     0
Max PV                      16
Cur PV                      1
Act PV                      1
Max PE per PV               1016
VGDA                        2
PE Size (Mbytes)            4
Total PE                    508
Alloc PE                    0
Free PE                     508
Total PVG                   0
Total Spare PVs             0
Total Spare PVs in use      0
```

```
# ioscan -funC disk

Class     I  H/W Path    Driver      S/W
State H/W Type  Description
=============================================
=======================
disk      0  8/0.5.0     sdisk       CLAIMED
DEVICE    SEAGATE ST34573WC
                        /dev/dsk/c0t5d0
/dev/rdsk/c0t5d0
disk      1  8/0.8.0     sdisk       CLAIMED
DEVICE    SEAGATE ST34572WC
                        /dev/dsk/c0t8d0
/dev/rdsk/c0t8d0
disk      3  8/0.1.0     sdisk       CLAIMED
DEVICE    SEAGATE ST32272WC
/dev/dsk/c1t1d0   /dev/rdsk/c1t1d0
disk      4  8/4.9.0     sdisk       CLAIMED
DEVICE    SEAGATE ST32550W
/dev/dsk/c4t9d0   /dev/rdsk/c4t9d0
disk      5  8/8.13.0    sdisk       CLAIMED
DEVICE    SEAGATE ST32171W
/dev/dsk/c5t13d0   /dev/rdsk/c5t13d0
disk      6  8/8.14.0    sdisk       CLAIMED
DEVICE    SEAGATE ST32171N
/dev/dsk/c5t14d0   /dev/rdsk/c5t14d0
disk      2  8/16/5.2.0  sdisk       CLAIMED
DEVICE    TOSHIBA CD-ROM XM-5701TA
/dev/dsk/c3t2d0   /dev/rdsk/c3t2d0
```

```
# @(#)B.11.11_LR
# /etc/lvmrc
#
# This file is sourced by /sbin/lvmrc. This file contains the flags
# AUTO_VG_ACTIVATE and RESYNC which are required by the script in /sbin/lvmrc.
# These flags must be set to valid values (see below).
#

#
# The activation of Volume Groups may be customized by setting the
# AUTO_VG_ACTIVATE flag to 0 and customizing the function
# custom_vg_activation()
#

#
#     To disable automatic volume group activation,
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#

AUTO_VG_ACTIVATE=0

#
#     The variable RESYNC controls the order in which
#     Volume Groups are resyncronized. Allowed values
#     are:
#           "PARALLEL"  - resync all VGs at once.
#           "SERIAL"    - resync VGs one at a time.
#
#     SERIAL will take longer but will have less of an
#     impact on overall I/O performance.
#

RESYNC="SERIAL"
#
#     Add customized volume group activation here.
#     A function is available that will synchronize all
#     volume groups in a list in parallel. It is
#     called parallel_vg_sync.
#
#     This routine is only executed if AUTO_VG_ACTIVATE
#     equals 0.
#

custom_vg_activation()
{
      # e.g. /sbin/vgchange -a y -s
      #      parallel_vg_sync "/dev/vg00 /dev/vg01"
      #      parallel_vg_sync "/dev/vg02 /dev/vg03"

   /sbin/vgchange -a y -s vgpayroll
   parallel_vg_sync "/dev/vgpayroll"
      return 0
}

#
# The following functions should require no additional customization:
#

parallel_vg_sync()
{
      for VG in $*
      do
            {
            if /sbin/vgsync $VG > /dev/null
            then
                  echo "Resynchronized volume group $VG"
            fi
            } &
      done
}
```
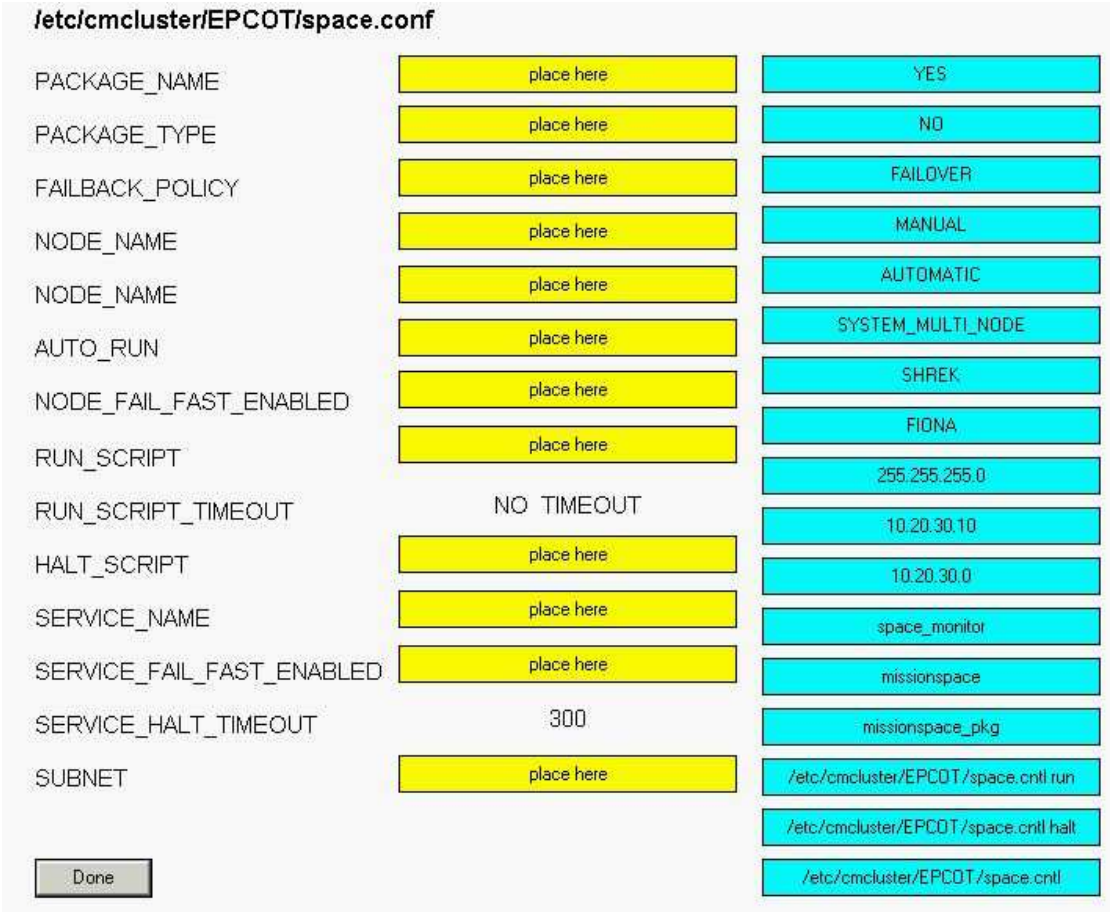

```
crw-r-----  1 root  sys  64 0x000000 Jun 14
11:03 /dev/vg00/group
crw-r--r--  1 root  sys  64 0x010000 Jun 15
08:43 /dev/vgpayroll/group
```

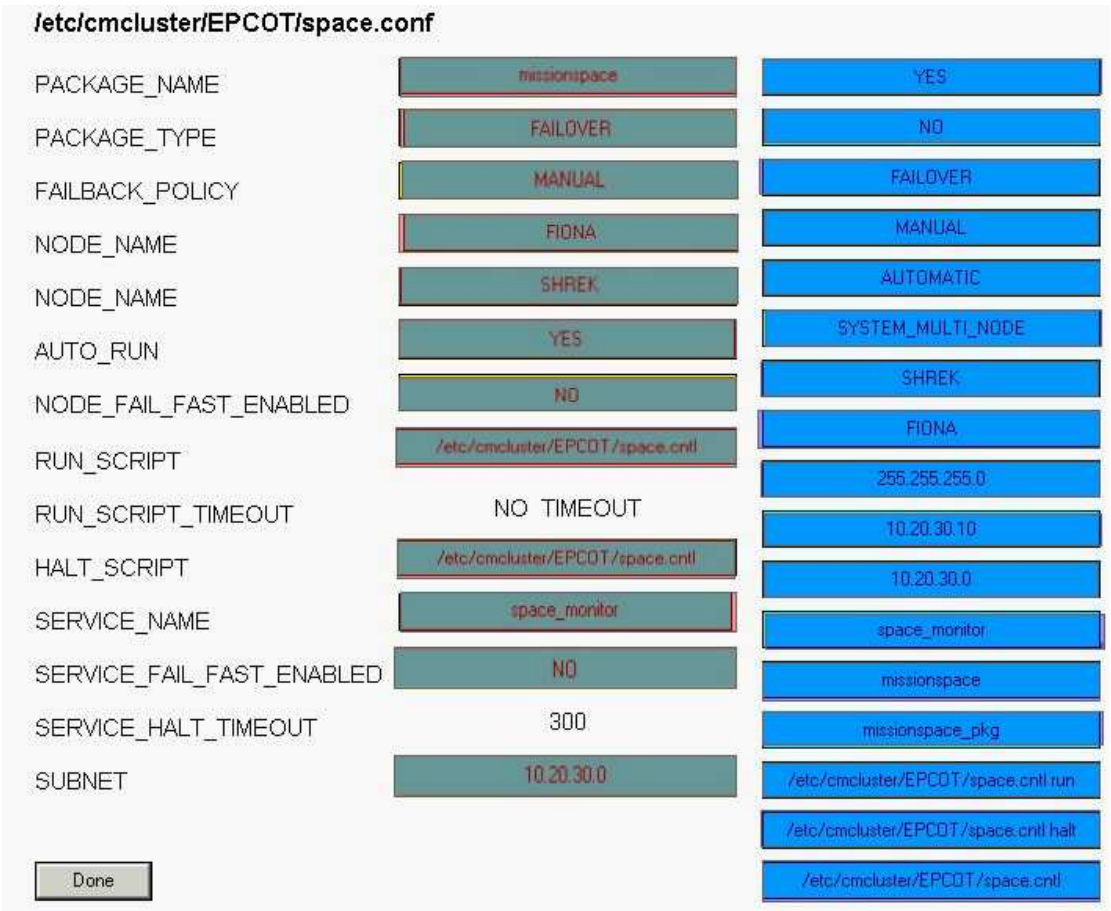
```
/dev/vg00
/dev/dsk/c0t5d0
/dev/dsk/c0t8d0
/dev/vgpayroll
/dev/dsk/c1t1d0
```

Correct Answers:

3: Click the Task button to begin. Configure a Serviceguard package by dragging and dropping the appropriate options into the empty field locations. There is more than one possible answer.
The package will be called 'missionspace' and will have an IP address of 10.20.30.10 on the 10.20.30.0 network. A failure of the 10.20.30.0 network will cause the package to fail over to the adoptive node. The package will run on FIONA as the primary node and fail back from SHREK manually. A service process called space_monitor will be used to monitor the health of the package. The monitor is started by running the script /etc/cmcluster/EPCOT/spaceman and passing it the argument A failure of this process 2 times will cause the package to fail to the alternate node without affecting the node it is running on.
The package mounts the logical volume /dev/vg04/moonvol at the directory /opt/moon. The filesystem type should be the Veritas file system and mounted with a delaylog option.
The application is started by the command: /opt/moon/missionspace/takeoff.sh and stopped by the command: /opt/moon/missionspace/touchdown.sh.



Correct Answers:


/etc/cmcluster/EPCOT/space.conf
PACKAGE_NAME
missionspace
YES
PACKAGE_TYPE
FAILOVER
NO
FAILBACK_POLICY
MANUAL
FAILOVER
NODE_NAME
FIONA
MANUAL
NODE_NAME
SHREK
AUTOMATIC
AUTO_RUN
YES
SYSTEM_MULTI_NODE
NODE_FAIL_FAST_ENABLED
NO
SHREK
RUN_SCRIPT
/etc/cmcluster/EPCOT/space.cntl
FIONA
RUN_SCRIPT_TIMEOUT
NO TIMEOUT
255.255.255.0
HALT_SCRIPT
/etc/cmcluster/EPCOT/space.cntl
10.20.30.10
SERVICE_NAME
space_monitor
10.20.30.0
SERVICE_FAIL_FAST_ENABLED
NO
space_monitor
SERVICE_HALT_TIMEOUT
300
missionspace
SUBNET
10.20.30.0
missionspace_pkg
/etc/cmcluster/EPCOT/space.cntl run
/etc/cmcluster/EPCOT/space.cntl halt
Done
/etc/cmcluster/EPCOT/space.cntl