Q1. Configure Authentication using below information

- **Provider name is ex280-provider**
- **Secret name is super-secret**
- **Configure user and apply password for them**

 Solution:

yum install httpd-tools –y (in exam only, in rol lab, package already exists)

lab-configure

#oc login -u kubeadmin -p password https://api...:8443

#lab auth-provider start

#source /etc/bash_completion.d/oc (in lab only for occ md auto-completion with tab)

```
 57  htpsswd -c -B -b openshift-password harry redhat
 58  htpasswd -c -B -b openshift-password harry redhat
 59  htpasswd -B -b openshift-password bob redhat
 60  htpasswd -B -b openshift-password natasha redhat
 61  oc create secret generic super-secret --from-file htpasswd=openshift-password -n ope
hift-config
 62  oc get -o yaml oauth cluster
 63  oc get -o yaml oauth cluster > a.yaml
 64  vi a.yaml
 65  oc replace f a.yaml
 66  oc replace -f a.yaml
 67  oc login harry -p redhat
```

```
File  Edit  View  Search  Terminal  Help
apiVersion: config.openshift.io/v1
kind: OAuth
metadata:
  name: cluster
spec:
  identityProviders:
    - htpasswd:
        fileData:
          name: super-secret
      MappingMethod: claim
      name: ex280-provider
      type: HTPasswd
~
~
~
```

************************** Complete Q1******************************

Q2. Add & Remove roles.

- **Cluster administrator for harry**
- **Bob should be able create project but not administrator tasks**
- **Jeff should not be able create project**
- **Kubaadmin is not present (make sure your cluster-admin user is working fine before delete kubeadmin, otherwise ocp-cluster not recoverable)**

```
[student@workstation ~]$ oc delete secret/kubeadmin -n kube-system
secret "kubeadmin" deleted
[student@workstation ~]$ oc whoami
harry
```

- **(https://docs.openshift.com/container-platform/4.1/authentication/remove-kubeadmin.html)**

Answer:

 # oc describe clusterrolebindings self-provisioners (mind the 's' in end here and not in command below)

 # oc adm policy remove-cluster-role-from-group self-provisioner system:authenticated:oauth

oc adm policy add-cluster-role-to-user cluster-admin harry

oc adm policy add-cluster-role-to-user self-provisioner   bob

*************************End Q2*******************************

Q3. Create project and assign Role For user

oc new-project qa

oc new-project dev

oc new-project test

oc adm policy add-role-to-user admin   harry –n project1

oc adm policy add-role-to-user edit bob –n project2

oc adm policy add-role-to-user view jeff –n project3

Q4. Add group and add member into the group

oc adm groups new dev-group

oc adm groups new prod-group

oc adm groups new qa-group

oc adm groups add-users qa-group harry

oc adm groups add-users dev-group jeff

oc adm groups add-users prod-group   bob

Q5. Add role to group on project

oc adm policy add-role-to-group admin qa-group –n project1

oc adm policy add-role-to-group edit prod-group –n project2

Q6. Deploy the Application (Troubleshoot the Node)

Note: there is application which is already in exam but pod is showing in pending state. Candidates have to fix the issue. so there is related to taint Node.

oc get pod

oc get events

oc get nodes

#kubectl taint nodes workernode1 color=blue:NoSchedule

oc describe node worker1 | grep taint

oc edit node worker1   (delete taint lines in node file)

oc edit node worker2   (delete same taint line)

#oc get po (Make sure pod should be in running state)

Q7. Create Service Account and assign root privileged

oc create serviceaccount   userroot

oc adm policy add-scc-to-user   anyuid -z userroot

************************End Q7*********************

Q8. Deploy the Application with Service Account

Note:

- there is application which is already in any project , project name will be given but application pod is not running due to some   privilege issue in pod . So candidates have edit deploy with Service account which already created above .
- another problem was the service endpoint for pods. So make correct service selector value according pod label.

 Answer:

 # oc edit deploymen   t

 Spec:

serviceAccountName: userroot [add this line]

Containers:

:wq!

oc get pod –show-labels [determine the pod label which will use in service]

oc edit service

Selector:

app: nginx [this line is pod label]

********************************end Q8************************

Q9. Create secret using below information

- secret Name is ex280-secret
- it hold "redhat" value into password variable

Answer:

kubectl create secret generic ex280-secret –from-literal=password=redhat

*******************************EndQ9********************

Q10. Use Secret on Running Deployment .

- mysql deployment already running
- user secret as MYSQL_ROOT_PASSWORD

Answers:

oc set env dc/mysql --prefix MYSQL_ROOT_PASSWORD --from secret/ex280-secret

Note: make sure applicaton should be running

**********************************EndQ10***********************

Q11. Create Resources with below information

- **Quota Name is ex280-quota**
- **Maximum Pods 5 and Service ip 6 and Replication Controller 5**
- **Memory 1G and cpu core is 1**

Answer:

# oc create quota ex280-quota --
hard=memory=1Gi,cpu=1,pods=5,services=5,replicationcontrollers=5

*****************************End11****************************

Q12. Create Limit Range

Note: All values will be given.

 # oc create –f limit.yml

```
File  Edit  View  Search  Terminal  Help
apiVersion: v1
kind: LimitRange
metadata:
  name: ex280-limitrange
spec:
  limits:
    - type: Pod
      max:
        cpu: 2
        memory: 2G
      min:
        cpu: 500m
        memory: 500M
    - type: Container
      max:
        cpu: 1
        memory: 1G
      min:
        cpu: 400m
        memory: 400M
      default:
        cpu: 600m
        memory: 600M
~
~
~
```

****************************End********************************

Q13. Configure Resource Request & limits into deployment and Apply Aut oScale Rule

- **Deployment cpu requests value is 200m & limits 400m**
- **Autoscaling cpu threshold 60 percentage**
- **Min pod in pool 3**
- **Max pod in pool 6**

Answers:

oc edit dc

Spec:

  Containers:

   resources:

Add below lines

    limits:

      cpu: "400m"

    requests:

      cpu: "200m"

oc autoscale dc/hello --min 3 --max 6 --cpu-percent 60

Q14. Update deployment Replicas

Note: there is deployment which is already running in any project so u just switch the project scale up the replicas

oc get dc

oc scale dc/greeter --replicas=5

Q15. Create secure Route with below information

- Expose application https://something.example.com
- Generate self sign certificate using given subject
- **"/C=US/ST=North Carolina/L=Raleigh/O=Red Hat/\ CN=https://something.example.com"**

Note: Service already created in any given project just you have to expose service with https

Solution:

oc new-app --name=hello --docker-image=docker.io/ramprakashupadhyay123/opesnhift

openssl req -x509 -sha256 -nodes -days 365 -newkey rsa:4096 -keyout private.key -out certificate.crt

```
 265  openssl req -x509 -sha256 -nodes -days 365 -newkey rsa:4096 -keyout private.key -out certificate.crt
```

oc create route edge --service=hello –hostname=hello.example.com –cert=certificate.crt –key=private.key

oc get route

Open the Browser and check URL

```
[student@workstation ~]$ oc delete route/hello
route.route.openshift.io "hello" deleted
[student@workstation ~]$ oc delete route
error: resource(s) were provided, but no name, label selector, or --all flag specified
[student@workstation ~]$ oc get route
No resources found.
[student@workstation ~]$ oc expose service
error: resource(s) were provided, but no name, label selector, or --all flag specified
[student@workstation ~]$ oc expose service=hello
error: resource(s) were provided, but no name, label selector, or --all flag specified
[student@workstation ~]$ oc expose service hello
route.route.openshift.io/hello exposed
[student@workstation ~]$ oc get route
NAME    HOST/PORT                                                         PATH    SERVICES   PORT
  TERMINATION    WILDCARD
hello   hello-secure-route.apps.ocp-xxwzekyprowrlvy200914.do280.rht-ap.nextcle.com          hello      8080-tcp
            None
[student@workstation ~]$ oc delete route/hello
route.route.openshift.io "hello" deleted
[student@workstation ~]$ oc create route edge --service=hello --hostname=hello-secure-route.apps.ocp-xxwzekyprow
rlvy200914.do280.rht-ap.nextcle.com --cert=certificate.crt --key=private.key
route.route.openshift.io/hello created
[student@workstation ~]$ oc get route
NAME    HOST/PORT                                                         PATH    SERVICES   PORT
  TERMINATION    WILDCARD
hello   hello-secure-route.apps.ocp-xxwzekyprowrlvy200914.do280.rht-ap.nextcle.com          hello      8080-tcp
  edge           None
[student@workstation ~]$ curl http://hello-secure-route.apps.ocp-xxwzekyprowrlvy200914.do280.rht-ap.nextcle.com:
8080
^C
[student@workstation ~]$
```

**************************Best Of Luck*************************

```
265  openssl req -x509 -sha256 -nodes -days 365 -newkey rsa:4096 -keyout private.key -out certificate.crt
```

Misc:

########

After fixing the deploments with serviceAccounts, Secrets, taints, labels, NodeSelectors, compute resource (cpu) limits , POD will start RUNNING but in second question or second part of same question, we have to get the route working, below are some scenarios

Route issues:

Issue-1). route is created but not working (curl cmd output not coming), fix it without adding removing or adding any configuration of application.

Sol: #oc get events --> 0/6 nodes available, NodeSelector not matched:

   #oc edit dc/myapp (look for nodeSelector: app: Track)

      #label the worker nodes approprivately

      # oc label nodes worker1 app=Track (error: workernode1 already have label track but it's not Track - mind the caps T)

      #oc label nodes worker1 app=Track --overwrite

Issue-2).. route is created but not working (curl cmd output not coming), fix it without adding removing or adding any configuration of application.

Sol: route which is exosed, wont give curl output even after pod started running cos spelling (app instead of apps) so delete the route and re-create.

      #oc delete route myapp

      # oc expose service myapp

Issue-3). route is created but not working (curl cmd output not coming), fix it without adding removing or adding any configuration of application.

   # oc get events

                   --> been running for 600secs, not working --

        # oc get pods

                   --> pods/myapp-deploy-1 error

        #oc edit dc/myapp (here will notice memory: 80G) which is not avilable to it so make it 1G and pod will start running

Issue-4). route is created but not working (curl cmd output not coming), fix it without adding removing or adding any configuration of application.

   #oc get route

    ROUTE NAME   PATH

   # project-myapp-apps.example.com   /

   # Above route is not working through curl and looks like it's for some path based routing

   # So leave above route intact and create new one

   # oc expose service myapp and this one will work

Issue-4). route is created but not working (curl cmd output not coming), fix it without adding removing or adding any configuration of application.

oc get svc pods --show-lables

  # oranges

oc describe svc oranges

 --> endpoints: -- (here, will notice that there are no endpoints/container ip(s))

 # oc edit dc/oranges

--> here selector:

app: orange (we have to add an 's' to correct the label)

now if we do curl route (of the service oranges, will show sweet output)

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