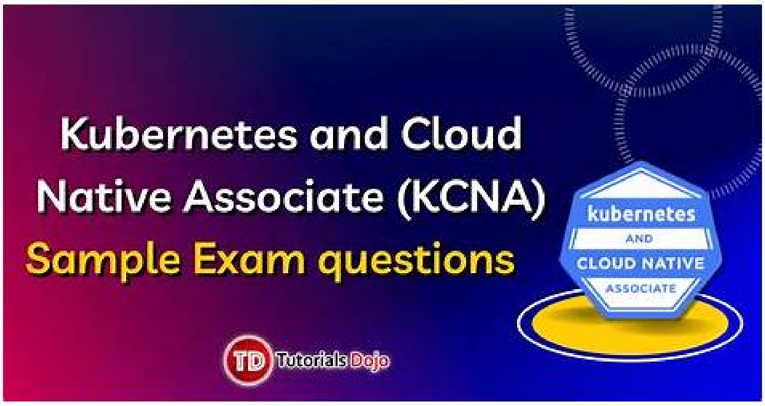
Pass-Sure KCNA - Kubernetes and Cloud Native Associate Simulation Questions



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>> KCNA Simulation Questions <<

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Linux Foundation is a non-profit organization that is dedicated to promoting open-source technology, collaboration, and innovation. One of the ways in which it does this is through its certification program, which is designed to recognize and validate the skills and expertise of individuals working in the field of open-source technology. As part of this program, the Linux Foundation offers the KCNA (Kubernetes and Cloud Native Associate) exam.

Linux Foundation Kubernetes and Cloud Native Associate Sample Questions (Q179-Q184):

NEW QUESTION # 179
Which of the following options include resources cleaned by the Kubernetes garbage collection mechanism?

- A. Nodes deleted by a cloud controller manager and obsolete logs from the kubelet.
- B. Terminated pods, completed jobs, and objects without owner references.
- C. Unused container and container images, and obsolete logs from the kubelet.
- D. Stale or expired CertificateSigningRequests (CSRs) and old deployments.

Answer: B

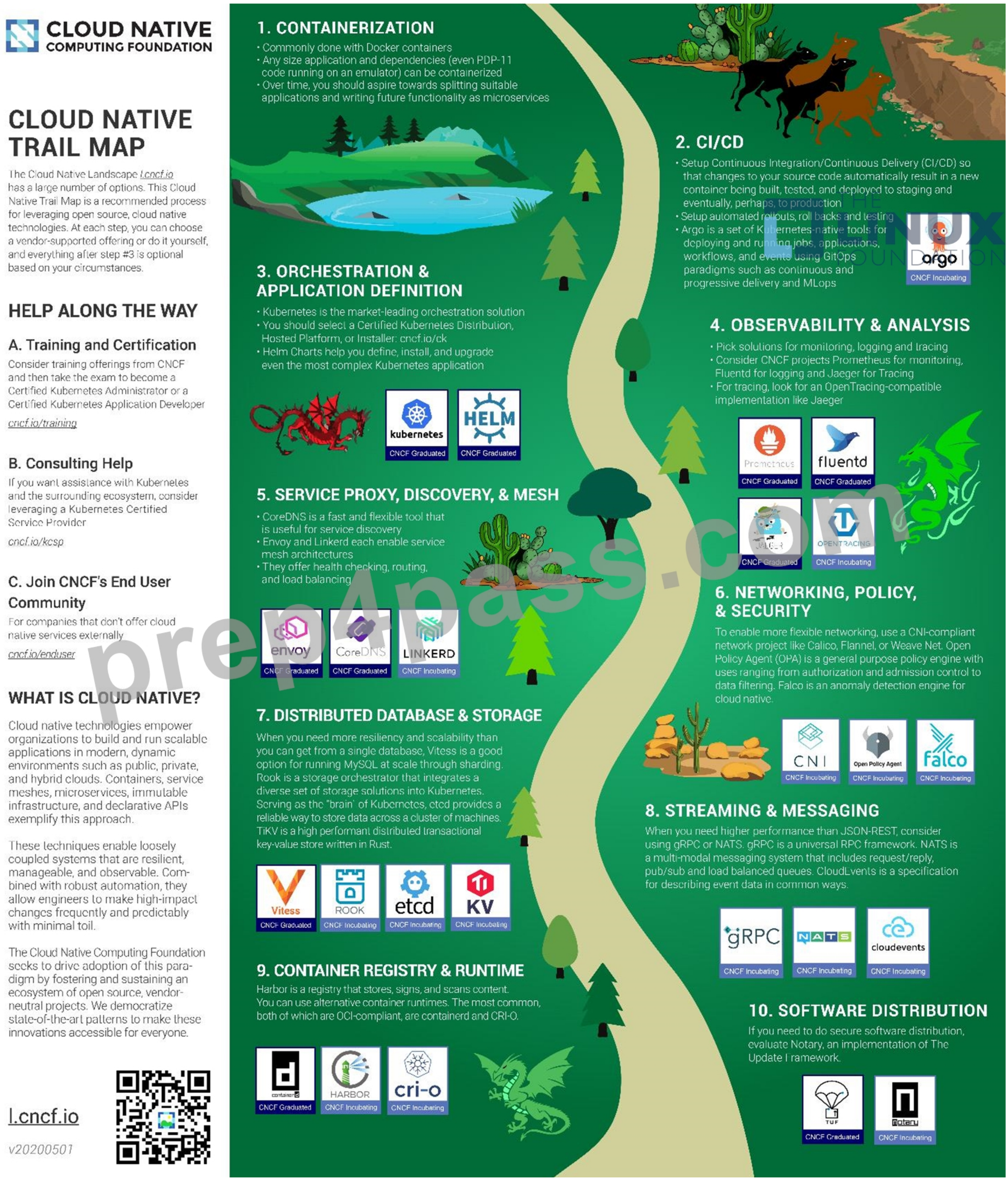
Explanation:
Kubernetes garbage collection (GC) is about cleaning up API objects and related resources that are no longer needed, so the correct answer is D. Two big categories it targets are (1) objects that have finished their lifecycle (like terminated Pods and completed Jobs, depending on controllers and TTL policies), and (2) "dangling" objects that are no longer referenced properly-often described as objects without owner references (or where owners are gone), which can happen when a higher-level controller is deleted or when dependent resources are left behind.
A key Kubernetes concept here is OwnerReferences: many resources are created "owned" by a controller (e.g., a ReplicaSet owned by a Deployment, Pods owned by a ReplicaSet). When an owning object is deleted, Kubernetes' garbage collector can remove dependent objects based on deletion propagation policies (foreground/background/orphan). This prevents resource leaks and keeps the cluster tidy and performant.
The other options are incorrect because they refer to cleanup tasks outside Kubernetes GC's scope. Kubelet logs (B/C) are node-level files and log rotation is handled by node/runtime configuration, not the Kubernetes garbage collector. Unused container images (C) are managed by the container runtime's image GC and kubelet disk pressure management, not the Kubernetes API GC. Nodes deleted by a cloud controller (B) aren't "garbage collected" in the same sense; node lifecycle is handled by controllers and cloud integrations, but not as a generic GC cleanup category like ownerRef-based object deletion.
So, when the question asks specifically about "resources cleaned by Kubernetes garbage collection," it's pointing to Kubernetes object lifecycle cleanup: terminated Pods, completed Jobs, and orphaned objects-exactly what option D states.

NEW QUESTION # 180
Fluentd is the leading project in the CNCF space for logging?

- A. TRUE
- B. FALSE

Answer: A

Explanation:
https://github.com/cncf/landscape#trail-map



NEW QUESTION # 181
You're using Prometheus and Grafana for monitoring your Kubernetes cluster. How can you utilize these tools to identify potential cost-saving opportunities?

- A. Integrate Prometheus and Grafana with your cloud provider's billing data to gain insights into cost breakdown by resource type and service.
- B. Set up alerts in Prometheus to notify you when resource utilization consistently exceeds a certain threshold.
- C. Analyze historical metrics to identify workloads with low utilization, allowing you to potentially downscale or optimize those deployments.
- D. Create dashboards in Grafana to visualize CPU and memory utilization metrics collected by Prometheus.
- E. Use Prometheus's query language to identify pods or deployments that are frequently restarting or experiencing errors, indicating potential resource constraints.

Answer: B,C,D,E

Explanation:
Monitoring tools like Prometheus and Grafana are essential for identifying cost-saving opportunities. Visualizing resource utilization metrics (CPU, memory) in Grafana provides an overview of resource consumption. Alerts based on resource utilization thresholds notify you of potential overprovisioning. Analyzing historical metrics helps identify underutilized workloads for downscaling or optimization. Prometheus queries can identify issues like frequent pod restarts or errors, potentially indicating resource constraints that can be addressed. While integrating billing data can provide valuable insights, it is not directly supported by Prometheus or Grafana.

NEW QUESTION # 182
You have a Kubernetes cluster running on AWS. You want to configure a persistent volume claim (PVC) that uses an AWS EBS volume for storage. Which annotation can be used to specify the EBS volume type?

- A. volume.beta.kubernetes.io/storage-class
- B. volume.beta.kubernetes.io/storage-provisioner
- C. volume.beta.kubernetes.io/aws-ebs-volume-size
- D. volume.beta.kubernetes.io/aws-ebs-volume-type
- E. volume.beta.kubernetes.io/aws-ebs-volume-encrypted

Answer: D

Explanation:
The annotation •volume.beta.kubernetes.io/aws-ebs-volume-type• is used to specify the EBS volume type (e.g., 'gp2 , 701', 'standard') when using an AWS EBS volume for persistent storage. Option 'A' is used to specify the storage class for the PVC. Option 'B' specifies the storage provisioner, which is responsible for creating the volume. Option 'D' is used to specify the size of the EBS volume. Option 'E' is for specifying whether the EBS volume should be encrypted.

NEW QUESTION # 183
Kubernetes ___ allows you to automatically manage the number of nodes in your cluster to meet demand.

- A. Horizontal Pod Autoscaler
- B. Node Autoscaler
- C. Vertical Pod Autoscaler
- D. Cluster Autoscaler

Answer: D

Explanation:
Kubernetes supports multiple autoscaling mechanisms, but they operate at different layers. The question asks specifically about automatically managing the number of nodes in the cluster, which is the role of the Cluster Autoscaler-therefore B is correct.
Cluster Autoscaler monitors the scheduling state of the cluster. When Pods are pending because there are not enough resources (CPU/memory) available on existing nodes-meaning the scheduler cannot place them-Cluster Autoscaler can request that the underlying infrastructure (typically a cloud provider node group / autoscaling group) add nodes. Conversely, when nodes are underutilized and Pods can be rescheduled elsewhere, Cluster Autoscaler can drain those nodes (respecting disruption constraints like PodDisruptionBudgets) and then remove them to reduce cost. This aligns with cloud-native elasticity: scale infrastructure up and down automatically based on workload needs.
The other options are different: Horizontal Pod Autoscaler (HPA) changes the number of Pod replicas for a workload (like a Deployment) based on metrics (CPU utilization, memory, or custom metrics). It scales the application layer, not the node layer.
Vertical Pod Autoscaler (VPA) changes resource requests/limits (CPU/memory) for Pods, effectively "scaling up/down" the size of individual Pods. It also does not directly change node count, though its adjustments can influence scheduling pressure. "Node Autoscaler" is not the canonical Kubernetes component name used in standard terminology; the widely referenced upstream component for node count is Cluster Autoscaler.
In real systems, these autoscalers often work together: HPA increases replicas when traffic rises; that may cause Pods to go Pending if nodes are full; Cluster Autoscaler then adds nodes; scheduling proceeds; later, traffic drops, HPA reduces replicas and Cluster Autoscaler removes nodes. This layered approach provides both performance and cost efficiency.

NEW QUESTION # 184
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