High-Level Kubernetes Pod Definition Reference Card

```yaml
apiVersion: v1
kind: Pod
metadata:
  name: my-pod
  namespace: default             # (optional, default = "default")
  labels:                        # Key-value pairs for selectors
    app: myapp
  annotations:                   # Arbitrary metadata
    description: "Pod for testing"

spec:
  containers:
    - name: main-container
      image: nginx:1.25
      command: ["nginx"]
      args: ["-g", "daemon off;"]
      ports:
        - containerPort: 80
      env:                       # Inline env vars
        - name: MODE
          value: production
      envFrom:                   # Import from ConfigMap or Secret
        - configMapRef:
            name: my-config
      resources:                 # Resource requests/limits
        requests:
          cpu: "100m"
          memory: "64Mi"
        limits:
          cpu: "500m"
          memory: "256Mi"
      volumeMounts:
        - name: html
          mountPath: /usr/share/nginx/html
      livenessProbe:             # Probes for app health
        httpGet:
          path: /
          port: 80
        initialDelaySeconds: 5
        periodSeconds: 10
      readinessProbe:            # Probes for app readiness
        httpGet:
          path: /
          port: 80
        initialDelaySeconds: 3
        periodSeconds: 5
      startupProbe:              # Only used during startup
        httpGet:
          path: /
          port: 80
        failureThreshold: 30
        periodSeconds: 10
      lifecycle:
        preStop:
          exec:
            command: ["/bin/sh", "-c", "sleep 5"]
      securityContext:
        runAsUser: 1000
        allowPrivilegeEscalation: false
      tty: true
      stdin: true

  volumes:
    - name: html
      emptyDir: {}

  restartPolicy: Always          # Always | OnFailure | Never
  nodeSelector:                  # Hard scheduling constraint
    disktype: ssd

  tolerations:                   # To allow scheduling on tainted nodes
    - key: "dedicated"
      operator: "Equal"
      value: "gpu"
      effect: "NoSchedule"

  affinity:                      # Advanced node/pod selection
    nodeAffinity:
      requiredDuringSchedulingIgnoredDuringExecution:
        nodeSelectorTerms:
          - matchExpressions:
              - key: disktype
                operator: In
                values: ["ssd"]

  serviceAccountName: my-service   # Service account to use
  terminationGracePeriodSeconds: 30
  dnsPolicy: ClusterFirst          # DNS config (ClusterFirst, Default)
  hostNetwork: false
  hostPID: false
  hostIPC: false
  imagePullSecrets:
    - name: regcred
```

Key Reminders

- `envFrom` makes loading multiple values from ConfigMaps/Secrets easier.
- Probes (`liveness` , `readiness` , `startup`) help with app health checks and startup tuning.
- `restartPolicy` only applies to Pods directly — not to Deployments (which always restart Pods).
- `volumes` must be paired with `volumeMounts` in the container.
- `securityContext` can be defined at **container-level** or **pod-level**.