

1. Which elements are allowed in the `<filter-mapping>` element of the deployment descriptor? (Select three)

- a** `<servlet-name>`
- b** `<filter-class>`
- c** `<dispatcher>`
- d** `<url-pattern>`
- e** `<filter-chain>`

2. What is wrong with the following code?

```
public void doFilter(ServletRequest req, ServletResponse res,
FilterChain chain)
throws ServletException, IOException {

    chain.doFilter(req, res);
    HttpServletRequest request = (HttpServletRequest)req;
    HttpSession session = request.getSession();
    if (session.getAttribute("login") == null) {
        session.setAttribute("login", new Login());
    }
}
```

- a** The `doFilter()` method signature is incorrect; it should take `HttpServletRequest` and `HttpServletResponse`.
- b** The `doFilter()` method should also throw `FilterException`.
- c** The call to `chain.doFilter(req, res)` should be `this.doFilter(req, res, chain)`.
- d** Accessing the request after `chain.doFilter()` results in an `IllegalStateException`.
- e** Nothing is wrong with this filter.

3. Given these filter mapping declarations:

```
<filter-mapping>
  <filter-name>FilterOne</filter-name>
  <url-pattern>/admin/*</url-pattern>
  <dispatcher>FORWARD</dispatcher>
</filter-mapping>
<filter-mapping>
  <filter-name>FilterTwo</filter-name>
  <url-pattern>/users/*</url-pattern>
</filter-mapping>
<filter-mapping>
  <filter-name>FilterThree</filter-name>
  <url-pattern>/admin/*</url-pattern>
</filter-mapping>
<filter-mapping>
  <filter-name>FilterTwo</filter-name>
  <url-pattern>/*</url-pattern>
</filter-mapping>
```

In what order are the filters invoked for the following browser request?

/admin/index.jsp

- a** FilterOne, FilterThree
- b** FilterOne, FilterTwo, FilterThree
- c** FilterThree, FilterTwo
- d** FilterThree, FilterTwo
- e** FilterThree
- f** None of these filters are invoked.