


National University of Computer and Emerging Sciences, Lahore Campus

	Course Name:	Web Engineering	Course Code:	SE3003
	Program:	BS (Software Engineering)	Semester:	Spring 2025
	Section:	BSE-6A	Total Marks:	20
	Date:		Weight:	
	Exam Type:	Quiz 4	Roll No:	
Student Name:				

Q1: Encircle the correct option. (12)

1. In Redux, what is a reducer?

- a) Function that creates actions
- b) Function that updates state**
- c) Function that listens to state changes
- d) Middleware

2. What hook is used to access Redux state in React?

- a) useStore
- b) useDispatch
- c) useReducer
- d) useSelector**

3. Which Redux Toolkit method is used to create reducers and actions in one step?

- a) createAction
- b) createReducer
- c) configureStore
- d) createSlice**

4. What does an action in Redux typically contain?

- a) Type only
- b) Payload only
- c) Type and payload**
- d) Only functions

5. A developer sees that Redux actions are being dispatched multiple times unexpectedly. What could be the cause?

- a) A component is dispatching an action in**

useEffect without a dependency array

- b) Middleware is missing
- c) The reducer is mutating state directly
- d) The Redux store is corrupted

6. What does fs.readFileSync() return?

- a) Callback
- b) Stream
- c) Promise
- d) Buffer**

7. Which method writes data to a file asynchronously?

- a) fs.writeFile**
- b) fs.writeFileSync
- c) fs.appendFileSync
- d) fs.createWriteStream

8. What is the use of response.writeHead()?

- a) Write response body
- b) Set request headers
- c) Set status code and headers**
- d) Log response

9. What status code indicates an internal server error?

- a) 502
- b) 301
- c) 500**
- d) 403

10. Which status code is returned for "Created"?

- a) 201
- b) 200
- c) 204
- d) 500

11. What object in Express contains the request URL?

- a) res.url

b) req.path

c) req.url

d) res.path

12. How is middleware applied in Express?

a) app.use(middleware)

b) app.middleware()

c) app.get(middleware)

d) app.route()

Q2: Explain the difference between PUT and PATCH methods. (2)

PUT replaces the entire resource with the updated one.

PATCH updates only the specified fields of a resource.

Q3: List the three primary types of Node.js modules. (3)


Core/built-in Modules

Local/custom Modules

Third-party Modules

Q4: Write a basic Redux Toolkit slice named counterSlice with an initial state of { count: 0 } and 1 reducer (increment) to increment the count. No imports/exports needed. (3)

```
const counterSlice = createSlice({  
  name: 'counter',  
  initialState: { count: 0 },  
  reducers: {  
    increment: (state) => {state.count += 1;}  
  }  
})
```

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Q1: Encircle the correct option. (12)

1. Which function is used to send actions to the store?

- a) useReducer
- b) useSelector
- c) **useDispatch**
- d) useAction

2. In Redux Toolkit, what replaces action types and creators?

- a) Reducers
- b) Stores
- c) **Slices**
- d) Hooks

3. Where is the Redux store defined?

- a) Inside each component
- b) In the reducer
- c) **In a separate file using configureStore()**
- d) In index.js

4. A developer notices that a component is re-rendering frequently even when the relevant Redux state has not changed. What could be the cause?

- a) The component is missing useEffect
- b) **The component is using useSelector() without a memoized selector**
- c) Redux does not support React hooks

d) The store is not updating

5. Which Node.js module is used to work with file paths?

- a) fs
- b) http
- c) os
- d) **path**

6. What is the purpose of http.createServer()?

- a) Launches a client to connect to remote servers
- b) **Create a server**
- c) Start a client
- d) Serve static files from a directory

7. What does require('fs') do?

- a) **Import the file system module**
- b) Read file
- c) Write file
- d) Export the file system module

8. What type of module is fs in Node.js?

- a) Third-party
- b) User-defined
- c) External
- d) **Core/Built-in**

9. What is Express middleware?

- a) **A function with access to req, res, and next**
- b) A server listener
- c) A controller
- d) A route handler only

10. What is the correct way to define a GET route in Express?

- a) `app.method('GET', '/')`
- b) `app.route('GET', '/')`
- c) `app.fetch('/', callback)`
- d) `app.get('/', callback)`

11. Which status code indicates a successful request?

- a) 500
- b) 404
- c) 300
- d) 200

12. What is `res.writeHead(200, { 'Content-Type': 'text/html' })` used for?

- a) Sets the status code and response headers before sending the body.
- b) Writes HTML content to the response stream.
- c) Ends the HTTP response with status code 200.
- d) Immediately sends the response body with headers.

Q2: What is the purpose of `path.join()` and `path.resolve()` in Node.js? (2)

The `path.join()` method joins the specified path segments into one path using the appropriate platform-specific separator

The `path.resolve()` method takes a sequence of paths or path segments and resolves them into an absolute path.

Q3: Explain the difference between POST, DELETE and PATCH requests. (3)

POST is used to create a new resource on the server.


DELETE is used to remove an existing resource from the server.

PATCH is used to update partial data of an existing resource.

Q4: Write a basic Redux Toolkit slice named `userSlice` with an initial state of `{ name: '' }` and 1 reducer (named `updateUser`) to set the name. No imports/exports needed. (3)

```
const userSlice = createSlice({
  name: 'user',
  initialState: { name: '' },
  reducers: {
    updateUser: (state, action) => {
      state.name = action.payload;
    }
  }
});
```


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Q1: Encircle the correct option. (12)

1. What is a slice in Redux Toolkit?

- a) A reusable UI component defined in JSX
- b) A predefined middleware for state logging
- c) Collection of actions and reducers**
- d) A utility function for combining reducers

2. What is the main purpose of Provider from react-redux?

- a) Provide styles to the app
- b) Connect Redux store to the React app
- c) Automatically connects Redux actions to all React components
- d) Wraps React components to allow them to subscribe to state updates via context**

3. What hook from React Redux is used to access the store's state inside a functional component?

- a) useState
- b) useEffect
- c) useSelector**
- d) useReducer

4. In Redux Toolkit, what happens if you mutate state directly inside a

reducer created by createSlice?

- a) Redux Toolkit uses Immer to safely apply the mutation**
- b) The state is not updated
- c) It throws a runtime error
- d) React throws a warning

5. Which of the following is the correct syntax to write data to a file using the fs module in Node.js?

- a) fs.writeFileSync('file.txt', 'Hello World')**
- b) fs.createFile('file.txt', 'Hello World')
- c) fs.write('file.txt', 'Hello World')
- d) fs.appendFileSync('file.txt', 'Hello World')

6. What does the path.join() method in Node.js do?

- a) Returns the extension of a file
- b) Resolves an absolute path
- c) Splits a file path into components
- d) Combines multiple path segments into a single normalized path**

7. Which of the following HTTP methods is used in Express to update an existing resource?

- a) GET
- b) PUT**
- c) POST

d) DELETE

8. Which of the following status codes indicates a successful POST request in Express?

- a) 200 OK
- b) 201 Created
- c) 404 Not Found
- d) 500 Internal Server Error

9. Which of the following headers can be sent using the res.writeHead() method?

- a) Content-Type
- b) Content-Length
- c) Status code
- d) All of the above

10. What does the http.request() method in Node.js do?

- a) It creates a new server.
- b) It makes an HTTP request to a

server

- c) It listens for incoming requests.
- d) It sends an HTTP request to the client.

11. What type of module is path in Node.js?

- a) Third-party
- b) User-defined
- c) Core/Built-in
- d) External

12. What is the purpose of the res.status() method in a Node.js HTTP server?

- a) To set the content type of the response
- b) To set the status code of the HTTP response
- c) To log the response and status to the console
- d) To send the response body

Q2: In a React Redux setup, what is the role of the useSelector and the useDispatch hook? (2)

useSelector: Used to access the Redux store state inside a React component. It allows you to select specific slices of state.

useDispatch: Used to dispatch actions to the Redux store from a component, allowing you to trigger state updates

Q3: Explain the difference between PUT, PATCH and DELETE methods. (3)

PUT replaces the entire resource with the updated one.

DELETE is used to remove an existing resource from the server.

PATCH is used to update partial data of an existing resource.

Q4: Write a Node.js snippet that creates an HTTP server and serves an index.html file when the URL is /. Use fs.readFile. (3)

```
http.createServer((req, res) => {  
  if (req.url === '/') {  
    fs.readFile('index.html', (err, data) => {  
      res.writeHead(200, { 'Content-Type': 'text/html' });  
      res.end(data);  
    });  
  }  
}).listen(3000);
```