

BOLLSOM

First Sem – 20/10/2025

BCA

## Subject: Maths

Duration: 2

Max. Marks: 20

## **General Instructions:**

1. All questions are compulsory unless stated otherwise.
  2. The question paper consists of 4 section(s).
  3. Figures to the right indicate full marks for each question.
  4. Read all questions carefully before answering.

## MULTIPLE CHOICE QUESTIONS (MCQ)

[1 mark each]

Multiple Choice Questions (MCQ) | Bloom's Level: Remembering

1. What is the primary purpose of a Redux action?  
(A) To store data  
(C) To modify component props [1]  
(B) To describe an event  
(D) To render UI

2. Which of the following best describes the shape of a Redux action object?  
(A) {type: string, payload: any}  
(C) {dispatch: function, subscribe: function} [1]  
(B) {state: object, reducer: function}  
(D) {store: object, getState: function}

3. In Redux, the reducer function must be pure. Which statement correctly characterizes a pure function?  
(A) It can have side effects  
(C) It must not depend on external state [1]  
(B) It always returns a new object  
(D) It can modify its arguments

4. Which Redux middleware is commonly used to handle asynchronous actions?  
(A) Redux Logger  
(C) Redux Persist [1]  
(B) Redux Thunk  
(D) Redux DevTools

5. In a Redux store, which method is used to subscribe to state changes?  
(A) dispatch  
(C) getState [1]  
(B) subscribe  
(D) replaceReducer

## **OBJECTIVE TYPE**

**[1 mark each]**

Objective Type | Bloom's Level: Remembering

6. The Redux store holds the \_\_\_\_\_ (state) of the application. [1]

7. Redux actions must always contain a payload field. [1]

8. What is the name of the function that creates a Redux slice? [1]

9. Which of the following is NOT a builtin Redux middleware? [1]

- 10.** The Redux DevTools extension provides which of the following features?

[1]

### SHORT ANSWER

[1 mark each]

Short Answer | Bloom's Level: Remembering, Applying, Analyzing, Understanding

- 11.** Explain the role of the reducer function in Redux.

[1]

- 12.** Given a Redux store with initial state {count: 0} and a reducer that handles actions 'INCREMENT' and 'DECREMENT', what will be the state after dispatching actions INCREMENT, DECREMENT, INCREMENT?

[1]

- 13.** Differentiate between mapStateToProps and useSelector in React Redux.

[1]

- 14.** Justify why immutability is important in Redux reducers.

[1]

- 15.** Analyze how Redux Toolkit's createSlice simplifies reducer logic compared to manual reducer definition.

[1]

### LONG ANSWER

[1 mark each]

Long Answer | Bloom's Level: Remembering, Understanding, Creating, Applying, Analyzing

- 16.** Design a Redux slice for managing a shopping cart with actions to add, remove, and clear items, and write the reducer logic.

[1]

- 17.** Explain how Redux DevTools enable timetravel debugging and why it is valuable for state management.

[1]

- 18.** Apply the concept of pure functions to a mathematical function that computes the sum of squares of numbers in a state array, and illustrate how it can be used as a selector.

[1]

- 19.** Analyze the tradeoffs between using Redux Toolkit's configureStore and manually setting up a Redux store with combineReducers and middleware.

[1]

- 20.** Critically evaluate the use of Redux in a smallscale React application versus using React's builtin state management.

[1]