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**B.Sc. (E.C.S.) (Semester - VI) (New) (CBCS) Examination:  
October/November - 2025  
English (Compulsory)  
Business English (ECS1601)**

Day & Date: Tuesday, 28-10-2025  
Time: 03:00 PM To 05:00 PM

Max. Marks: 40

**Instructions:** 1) All questions are compulsory.  
2) Figures to the right indicate full marks.

**Q.1 Choose the correct alternatives.**

08

- 1) A good citizen is one who \_\_\_\_\_.  
a) obeys law                                  b) breaks law  
c) believes law                                d) knows law
- 2) Akshino was going to \_\_\_\_\_ fair.  
a) Czar    b) Nizhny  
c) Vladimir                                    d) Rayzan
- 3) Rabindranath Tagore got noble prize in \_\_\_\_\_.  
a) 1925    b) 1905  
c) 1913    d) 1918
- 4) What is the purpose of emissary's visit?  
a) To investigate duchess's death  
b) To arrest the duke  
c) To negotiate a marriage with duke  
d) To negotiate a marriage with duchess
- 5) What are the things read or heard by us?  
a) Plays    b) Novels  
c) Poems                                         d) Lovely tales
- 6) What time is used in the poem Tree at my window?  
a) Morning                                      b) Afternoon  
c) Night                                         d) Dawn
- 7) What is the adverbial in the following?  
a) happy                                         b) happily  
c) unhappy                                      d) happy-happy
- 8) She said, "I have my dinner in this restaurant."  
a) She said that she has dinner in that restaurant.  
b) She told that she had her dinner in that restaurant.  
c) She said that she has had her dinner in that restaurant.  
d) She said that would have dinner in that restaurant.

- Q.2 Answer the following question in brief. (Any Four)** **12**
- a) What are the dangers of separatism?
  - b) What is the significance of Akshino's wife's dream?
  - c) What is the theme of the poem Endless Love?
  - d) Describe the nature of duke.
  - e) Describe the nature in the poem ode to beauty.
  - f) What is the theme of Tree at my window?
- Q.3 Write short notes on the following. (Any One)** **10**
- a) What are the literacy (IMT) skills?
  - b) What are global awareness and civic literacy?
- Q.4 What are life skills (FLIPS)?** **10**

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**B.Sc. (E.C.S.) (Semester - VI) (New) (CBCS) Examination:  
October/November - 2025  
Network Security (ECS1602)**

Day & Date: Wednesday, 29-10-2025  
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:** 1) All questions are compulsory.  
2) Draw neat diagrams and give equations wherever necessary.  
3) Figures to right indicate full marks.

**Q.1 A) Multiple choice questions.**

**10**

- 1) Caesar Cipher is an example of \_\_\_\_\_.  
 a) Poly-alphabetic Cipher      b) Mono-alphabetic Cipher  
 c) Multi-alphabetic Cipher      d) Bi-alphabetic Cipher
- 2) A digital signature needs a \_\_\_\_\_.  
 a) Private-key system      b) Shared-key system  
 c) Public-key system      d) All of them
- 3) Which protocol is used to convey SSL related alerts to the peer entity?  
 a) Alert Protocol  
 b) Handshake Protocol  
 c) Upper-Layer Protocol  
 d) Change Cipher Spec Protocol
- 4) Which one of the following modes of operation in DES is used for operating short data?  
 a) Cipher Feedback Mode (CFB)  
 b) Cipher Block Chaining (CBC)  
 c) Electronic Code Book (ECB)  
 d) Output Feedback Modes (OFB)
- 5) Message authentication is a service beyond \_\_\_\_\_.  
 a) Message Confidentiality      b) Message Integrity  
 c) Message Splashing      d) Message Sending
- 6) MAC stands for  
 a) Message authentication code  
 b) Message arbitrary connection  
 c) Message authentication control  
 d) Message authentication cipher

- 7) What is the PGP stand for?
  - a) Permuted Gap Permission
  - b) Permuted Great Privacy
  - c) Pretty Good Permission
  - d) None of the mentioned
- 8) Digital signature cannot provide \_\_\_\_\_ for the message.
  - a) Authentication
  - b) Nonrepudiation
  - c) Confidentiality
  - d) Integrity
- 9) In Message Confidentiality, transmitted message must make sense to only intended
  - a) Receiver
  - b) Sender
  - c) Modulator
  - d) Translator
- 10) ElGamal encryption system is \_\_\_\_\_
  - a) symmetric key encryption algorithm
  - b) asymmetric key encryption algorithm
  - c) not an encryption algorithm
  - d) block cipher method

**B) Fill in the blank.****06**

- 1) The \_\_\_\_\_ algorithm takes the ciphertext and the secret key and produces the original plaintext.
- 2) The \_\_\_\_\_ is a pair of keys that have been selected so that if one is used for encryption, the other is used for decryption.
- 3) The 4x4 byte matrices in the AES algorithm are called \_\_\_\_\_.
- 4) In SHA-512, the message is divided into blocks of size \_\_\_\_\_ bits for the hash computation.
- 5) The DES Algorithm Cipher System consists of \_\_\_\_\_ rounds (iterations) each with a round key.
- 6) In asymmetric key cryptography, the private key is kept by \_\_\_\_\_

**Q.2 Solve any Eight of the following.****16**

- a) Define S/MIME.
- b) What is Cryptography?
- c) What is message authentication?
- d) Define Kerberos.
- e) What is a digital signature?
- f) What is brute-force attack?
- g) What is traffic padding?
- h) What is the need of security?
- i) What is mean by Message Digest?
- j) What you meant by hash function?

- Q.3 A) Attempt any Two of the following. 10**
- 1) Write a note on E-mail Security.
  - 2) Explain Asymmetric Key Cryptography.
  - 3) Explain Polyalphabetic Substitution cipher with example.
- B) Explain Types of Security attacks in detail. 06**
- Q.4 A) Attempt any Two of the following. 08**
- 1) Explain Security Services in Detail.
  - 2) Explain RSA Cryptosystem.
  - 3) Write the use of smart card and Biometrics.
- B) What is Firewall and explain types of Firewall. 08**
- Q.5 Attempt any Two of the following. 16**
- a)** Explain the AES algorithm in detail.
  - b)** What is mean by SSL? Explain SSL Architecture in network security.
  - c)** Explain IDEA in detail.

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**B.Sc. (E.C.S.) (Semester - VI) (New) (CBCS) Examination:  
October/November – 2025  
Data Warehousing and Data Mining (ECS1603)**

Day & Date: Thursday, 30-10-2025  
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

**Instructions:** 1) All questions are compulsory.

**Q.1 A) Multiple choice questions.**

**10**

- 1) \_\_\_\_\_ is not a data pre-processing methods.
  - a) Data Visualization
  - b) Data Discretization
  - c) Data Cleaning
  - d) Data Reduction
- 2) The type of relationships in Star Schema \_\_\_\_\_.
  - a) One to many
  - b) Many to many
  - c) Many to one
  - d) One to one
- 3) \_\_\_\_\_ is the collection of data objects that are similar to one another within the same group.
  - a) Partitioning
  - b) Grid
  - c) Cluster
  - d) Table
- 4) \_\_\_\_\_ clustering technique requires a merging approach.
  - a) Partitional
  - b) Hierarchical
  - c) Naive Bayes
  - d) None of the mentioned
- 5) The important aspect of the data warehouse environment is that data found within the data warehouse is \_\_\_\_\_.
  - a) subject-oriented
  - b) time-variant
  - c) integrated
  - d) All of the above
- 6) An outlier is a \_\_\_\_\_.
  - a) Description of records in the data
  - b) Data point which is considered different from other data points
  - c) Record with missing attributes
  - d) Duplicate record
- 7) \_\_\_\_\_ is used to day to day operations.
  - a) OLTP
  - b) OLAP
  - c) OLAM
  - d) None of these
- 8) Small logical units where data warehouse hold large amounts of data is known as \_\_\_\_\_.
  - a) Data Layers
  - b) Data Marts
  - c) Data Storages
  - d) Data Miners

- 9) In the example predicting the number of newborns, the final number of total newborns can be considered as the\_\_\_\_\_.  
a) Features  
b) Observation  
c) Attribute  
d) Outcome
- 10) Apriori algorithm operates in\_\_\_\_\_ method.  
a) Bottom-up search method  
b) Breadth-first search method  
c) None of the above  
d) Both a & b

**B) Fill in the blank.**

06

- 1) \_\_\_\_\_ method of analysis does not classify variables as dependent or Independent.
- 2) \_\_\_\_\_ is the purpose of data preprocessing in the context of data Warehousing.
- 3) \_\_\_\_\_ component of data warehousing architecture is responsible for querying and analyzing data stored in the data warehouse.
- 4) \_\_\_\_\_ phase of the data warehousing process involves combining data from various sources into a single, coherent format.
- 5) \_\_\_\_\_ is not a basic data mining task.
- 6) Converting data from different sources into a common format for processing is called as \_\_\_\_\_.

**Q.2 Solve the following. (Any Eight)**

16

- a) What is data reduction?
- b) What is a medoid in clustering?
- c) What is Operational Database?
- d) Define multimedia data mining.
- e) What is data characterization?
- f) Define web mining.
- g) What is data mining?
- h) Define Classifier.
- i) What is mean by Clustering?
- j) Define Dimension table.

**Q.3 A) Attempt the following. (Any Two)**

10

- 1) Explain closed frequent item sets.
- 2) Explain K-means clustering algorithms.
- 3) Apply all binning methods for the following sorted data with 3 bins: 3, 7, 8, 13, 22, 22, 24, 26, 28, 28, 30, 37

**B) Explain Snowflake Schema and Fact Constellation Schema with example.**

06

**Q.4 A) Attempt the following. (Any Two)**

08

- 1) Explain Naive Bayes Classifier.
- 2) Explain APRIORI Algorithm with example.
- 3) Explain KDD with suitable diagram.

**B)** Explain Types of Clustering in Details. **08**

**Q.5 Attempt the following. (Any Two)** **16**

- a)** Explain Data preprocessing in details.
- b)** Explain Data warehouse Architecture and its Components.
- c)** Explain classification by Decision tree induction Algorithm.



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**B.Sc. (E.C.S.) (Semester - VI) (New) (CBCS) Examination:  
October/ November – 2025  
ASP.Net Core MVC(ECS1604)**

Day & Date: Friday, 31-10-2025  
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

**Instructions:** 1) All questions are compulsory.  
2) Draw neat diagrams and give equations wherever necessary.  
3) Figures to right indicate full marks.

**Q.1 A) Multiple choice questions.**

**10**

- 1) The main role of the Program.cs file in ASP.NET Core is \_\_\_\_\_.  
 a) Define database structure  
 b) Configure services and middleware  
 c) Store models  
 d) Host SQL Server
- 2) The \_\_\_\_\_ service lifetime creates a new instance for every HTTP request, ensuring consistency during a request.  
 a) Scoped  
 b) Singleton  
 c) Transient  
 d) Global
- 3) The services.AddControllersWithViews() method in Program.cs is useful to add \_\_\_\_\_.  
 a) controller services only  
 b) Razor pages only  
 c) model binding services  
 d) MVC controller and view services
- 4) In a Razor View, you want to generate a <label> for the Email property of the model then \_\_\_\_\_ is the correct tag helper.  
 a) <label for="Email">  
 b) <label asp-label="Email">  
 c) <label asp-for="Email">  
 d) <label model="Email">
- 5) The \_\_\_\_\_ approaches is most commonly used for projects that start with a database schema and then build the model from that schema.  
 a) Code First  
 b) Database First  
 c) Model First  
 d) Entity First
- 6) To set a session value in ASP.NET Core, \_\_\_\_\_ is used.  
 a) Session.Set("key", value)  
 b) HttpContext.Session.Add("key", value)  
 c) HttpContext.Cookies.Set("key", value)  
 d) HttpContext.Session.SetString("key", value)

- 7) When setting up a database provider in an EF Core project, \_\_\_\_\_ class is used to configure the connection string.
  - a) DbContextOptionsBuilder
  - b) DbContext
  - c) DatabaseOptionsBuilder
  - d) DbSet
- 8) The \_\_\_\_\_ objects can be used to pass data between two consecutive requests in ASP.NET Core MVC.
  - a) ViewData
  - b) ViewBag
  - c) TempData
  - d) Model
- 9) The \_\_\_\_\_ navigation property setup would best represent a one-to-one relationship between Person and Passport.
  - a) public ICollection<Passport> Passports { get; set; }
  - b) public Passport Passport { get; set; }
  - c) public List<Passport> Passports { get; set; }
  - d) public ICollection<Person> People { get; set; }
- 10) The \_\_\_\_\_ feature in Entity Framework Core enables the insertion of initial data into the database.
  - a) Data Seeding
  - b) Migration
  - c) Fluent API
  - d) Model Binding

**B) Fill in the blank.****06**

- 1) When a record is retrieved from the database using DbContext, its default entity state is \_\_\_\_\_.
- 2) The \_\_\_\_\_ method is used to register services where a single instance is maintained throughout the application's lifetime
- 3) When creating a model where a Student can enroll in multiple Courses, and each Course can have multiple Students, the relationship is in \_\_\_\_\_ form.
- 4) The \_\_\_\_\_ tag helper is used to show validation messages for a specific model property.
- 5) \_\_\_\_\_ is a dictionary object that allows passing data from a controller to a view and can hold data for a single request.
- 6) The \_\_\_\_\_ attribute is used to prevent a property from being mapped to the database.

**Q.2 Solve the following. (Any Eight)****16**

- a) Explain [Table] and [Column] attribute with example.
- b) What is use of Shared folder? Explain in detail.
- c) What are limitations of [HttpPost] route over [Route] attribute.
- d) What is Collection Navigation Property? Give example.
- e) Explain View Component Tag Helper with example.
- f) What is Detached entity state?
- g) Explain Solution File in detail.
- h) Explain Validation HTML Helpers with example.
- i) What is Attribute Routing using Tokens? Give example.
- j) How to Enable InProcess Hosting? Give example.

- Q.3 A) Attempt the following. (Any Two) 10**
- 1) What are the different lifespans in Dependency Injection? Explain each with an example.
  - 2) Write steps to create ASP.NET Core Empty Application and convert it to MVC Application.
  - 3) Explain FileResult and ContentResult with example.
- B) What is data annotation? Explain with example how to create custom annotation? 06**
- Q.4 A) Attempt the following. (Any Two) 08**
- 1) What are different types of Models in ASP.NET Core MVC.
  - 2) What is partial view? Explain with example.
  - 3) Create web application which demonstrate TempData for Data Persistence Between Requests
- B) What is session? Explain different techniques to store session with example. 08**
- Q.5 Solve the following. (Any Two) 16**
- a) Explain features of .Net Core in detail.
  - b) Create CRUD application for student model using any Database.
  - c) What is ORM in EF core? Explain in detail DB providers used in EF Core.

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**B.Sc. (E.C.S.) (Semester - VI) (New) (CBCS) Examination:  
October/November – 2025  
React JS (ECS1605-A)**

Day & Date: Saturday, 01-11-2025  
Time: 03:00 PM To 06:00 PM

Max. Marks: 80

- Instructions:**
- 1) All questions are compulsory.
  - 2) Draw neat labelled diagrams wherever necessary.
  - 3) Figures to right indicate full marks.
  - 4) Use of log table and calculators is allowed.

**Q.1 A) Multiple choice questions.**

**10**

- 1) What is ReactJS primarily used for?
  - a) Backend development
  - b) Machine learning
  - c) Building user interfaces
  - d) Database management
- 2) JSX stands for: \_\_\_\_\_
  - a) JavaScript XML
  - b) Java Syntax Extension
  - c) Java Server Extension
  - d) Java Standard Execution
- 3) Which method is used to update state in a React component?
  - a) changeState()
  - b) setState()
  - c) updateState()
  - d) modifyState()
- 4) What is the primary purpose of props in React?
  - a) To store local component data
  - b) To pass data between components
  - c) To handle events
  - d) To modify the DOM
- 5) React components can be classified into: \_\_\_\_\_
  - a) Functional components
  - b) Class components
  - c) Both a & b
  - d) None of the above
- 6) Which hook is used for side effects in a functional component?
  - a) useState
  - b) useEffect
  - c) useReducer
  - d) useContext
- 7) What does the Virtual DOM do?
  - a) Directly updates the real DOM
  - b) Improves performance by reducing DOM manipulations
  - c) Slows down the UI updates
  - d) None of the above

- 8) Which package is required to use React Router?
  - a) react-redux
  - b) react-router-dom
  - c) react-dom
  - d) react-navigation
- 9) The default package manager for React applications is: \_\_\_\_\_
  - a) Bower
  - b) Yam
  - c) Npm
  - d) Pip
- 10) Which file contains the dependencies of a React project?
  - a) package.lock
  - b) package.json
  - c) index.js
  - d) config.js

**B) Fill in the blank/Definition/ One-word answer.**

06

- 1) The full form of JSX is \_\_\_\_\_.
- 2) React applications are built using a structure called \_\_\_\_\_.
- 3) The function used to render components in React is \_\_\_\_\_.
- 4) \_\_\_\_\_ allows you to pass data from a parent component to a child component.
- 5) The method used to bind events in React is \_\_\_\_\_.
- 6) The command to create a new React project using Create React App is \_\_\_\_\_.

**Q.2 Solve the following. (Any Eight)**

16

- a) Explain the workflow of ReactJS.
- b) What are the key differences between JavaScript and JSX?
- c) Describe the scope of ReactJS in modern web development.
- d) Explain Child Components with an example.
- e) What are Props in React? How are they used?
- f) Explain the purpose and implementation of JSX.
- g) Differentiate between functional components and class components.
- h) What are the different types of event binding methods in React?
- i) Explain how to create and access refs in React.
- j) Describe the purpose of package.json in a React project.

**Q.3 A) Attempt the following. (Any Two)**

10

- 1) Explain Conditional Rendering in React with an example.
- 2) What are the advantages of using JSX in React?
- 3) Describe how State and Props are used to manage data in React components.

**B) Short note/Solve.**

06

Explain the use of `map()` function in iterating lists in React.

**Q.4 A) Attempt the following. (Any Two)**

08

- 1) Explain React Router and its importance in building SPAs.
- 2) What is Redux? Explain its architecture.
- 3) Explain how context API is used for state management in React.

**B) Short Note/ Solve.**

08

### Short Note/ Essay:

Describe the use of useState and useEffect hooks in React.

**Q.5 Attempt the following. (Any Two)****16**

- a)** What are Controlled and Uncontrolled components in React? Explain with examples.
- b)** Explain how forms are validated in React applications.
- c)** What are React component lifecycle methods? Explain with an example.