Reg. No. : ...............................

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## Third Semester B.Sc./B.C.A. Degree Examination, January 2023

### Career Related First Degree Programme under CBCSS

### Group2(b) – Computer Science/Computer Applications

### Core Course

### CS 1341/CP 1344 — PROGRAMMING IN JAVA

### (2021 Admission)

Time : 3 Hours                                                                Max. Marks : 80

### SECTION – A (Very Short Answer Type)

**One** word to maximum of **one** sentence. Answer **ALL** questions.]

1.  API in Java stands for ————

2.  What is the purpose of the keyword public in main() method?

3.  Name the jump statements in Java.

4.  Give the syntax for declaring a two-dimensional array in Java.

5.  The ———— class can be used to create a server socket.

6.  Name any two built-in exceptions.

7.  What is the purpose of the keyword throw?

8.  Name two methods by which you can create threads.

9. Which is the method in Java called for a destructor?

10. Name the method for drawing a circle in an applet.

(10 × 1 = 10 Marks)

SECTION – B (Short Answer)

Not to exceed **one** paragraph, answer any **EIGHT** questions. **Each** question carries **TWO** marks.

11. What do you mean by bytecode?

12. What is encapsulation?

13. What is Array Index out of Bounds Exception?

14. Explain variable scope with an example.

15. How can you prevent overriding of variables and methods?

16. What is the purpose of the keyword static in Java?

17. What is the use of finally keyword?

18. What do you mean by an event source?

19. Write down the various constructors for a Checkbox.

20. List the different types of JDBC drivers.

21. What is a File class?

22. Explain conditional operators in Java.

23. Give the syntax for the *throws* keyword.

24. What is runnable interface?

25. Name any four layout managers.

26. What is the role of Driver Manager class?

SECTION – C (Short Essay)

Not to exceed **120** words, answer any **SIX** questions, Each question carries **FOUR** marks.

27. Explain various built-in packages available in Java.

28. Write a swing program to illustrate the use of J Text Field.

29. Explain the working of switch statement in Java with an example.

30. Explain dynamic method dispatch with an example.

31. How multiple inheritance can be implemented in Java?

32. Explain the concept of one dimensional arrays in Java.

33. Explain the use of super keyword.

34. What are abstract classes and abstract methods?

35. Give various built-in Event classes and its purpose.

36. Explain various constructors used for J Button.

37. Explain the use of multiple catch clauses.

38. Explain with example code how to create a client and server in socket programming.

(6 × 4 = 24 Marks)

## SECTION – D (Long Essay)

Answer any **two** questions. **Each** question carries **15** marks.

39.   Explain various *if* statements with syntax and example programs.

40.   Explain in detail the features of Java.

41.   Explain the concept of *try* and *catch* with example programs.

42.   With a diagram, explain the life-cycle of a thread.

43.   Differentiate method overloading and method overriding with example programs.

44.   Explain various built-in event listeners and their methods.

**(2 × 15 = 30 Marks)**

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## Third Semester B.Sc./B.C.A. Degree Examination, January 2023

### Career Related First Degree Programme under CBCSS

### Group 2(b) — Computer Science/Computer Applications

### Core Course

### CS 1343/CP 1342 : OPERATING SYSTEMS

### (2021 Admission)

Time : 3 Hours
Max. Marks : 80

### PART – A

#### (Very short answer questions)

Answer all questions. Each question carries **1** mark.

1. What do you mean by process?

2. Mention two advantages of OS.

3. What do you mean by monitor in process synchronization?

4. What do you mean by mutual exclusion?

5. What do you mean by compaction?

6. Expand the term PCB.

7. List out names of any two OS.

8. What do you mean by long term scheduler?

9. What do you mean by I/O buffering?

10. List out names of page replacement algorithms

PART – B

(Brief answer questions)

Answer **any eight** questions. Each question carries **2** marks.

11. Explain various thread states.

12. Short note on history of OS.

13. Write note on semaphores.

14. Compare preemptive and non preemptive scheduling algorithms.

15. Explain the uses of distributed systems.

16. Define the following

    (a) Thread

    (b) Deadlock

17. Write note on synchronization.

18. Explain the paging.

19. What do you mean by swapping?

20. Short note on spooling.

21. Explain the term demand paging.

22. What do you mean by segmentation?

23. What are the uses of Kernel?

24. What do you mean by RAG?

25. What is a concurrent process?

26. What are the differences internal and external fragmentation?

<div align="right">

**(8 × 2 = 16 Marks)**

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## PART – C

### (Short essay type questions)

Answer **any six** questions. Each question carries **4** marks.

27. Explain structure of OS.

28. Write short note on system calls.

29. Explain functions of operating system.

30. Explain PCB in detail.

31. Write short note on critical section.

32. Explain various process states.

33. Write a short note on threads.

34. Write short note on disk scheduling.

35. Write short note on RAID.

36. Write a short note on dead lock recovery.

37. Explain various file allocation methods.

38. Write short notes on virtual memory.

<div align="right">

**(6 × 4 = 24 Marks)**

</div>

# PART – D

## (Long Essays)

Answer **any two** questions. Each question carries **15** marks.

39.  Explain various preemptive scheduling algorithms.

40.  Explain various types of operating system.

41.  Explain various page replacement techniques.

42.  Explain various file management mechanisms.

43.  Explain various disk scheduling algorithm.

44.  Explain various deadlock detection techniques.

**(2 × 15 = 30 Marks)**

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### Third Semester B.Sc./B.C.A. Degree Examination, January 2023.

### Career Related First Degree Programme Under CBCSS

### Group 2(b) – Computer Science/Computer Applications

### Core Course

### CS 1344 / CP 1343 : DATABASE MANAGEMENT SYSTEMS

### (2021 Admission)

Time : 3 Hours                                                     Max. Marks : 80

### SECTION – A

### [Very Short Answer Type]

[One word to maximum of one sentence. Answer **all** questions]

1.  DDL stands for ————.

2.  ———— refers to the number of attributes in a relation.

3.  In the relational model, the relations are generally termed as ————.

4.  Attributes, which can be formed by the nesting of composite and multi-valued attributes, are called ———— attributes.

5.  A ———— entity will always have a primary key.

6.  Redundancy can be avoided by ————.

7.  In ———— lock, many transactions may hold a lock on the same data item.

8. ——————— ensures that a schedule for executing concurrent transactions is equivalent to one that executes the transactions serially in some order.

9. ——————— protocol is also known as optimistic concurrency control technique.

10. ——————— security is the protection of personnel, hardware, software, networks and data from physical actions and events that could cause serious loss or damage to an enterprise, agency or institution.

**(10 × 1 = 10 Marks)**

SECTION – B

[Short Answer]

[Not to exceed one paragraph, answer **any eight** questions. Each question carries **2 marks**]

11. What is network model in DBMS?

12. What do you mean by an end user? List various types of end users.

13. What is relational algebra in DBMS?

14. What is a candidate key? Give example.

15. Differentiate logical data independence and physical data independence.

16. Differentiate single-valued and multi-valued attributes with examples.

17. Explain INNER JOIN with an example.

18. Give an SQL query to illustrate the usage of IN operator.

19. What is ALIAS? Give an example.

20. What is the purpose of COMMIT command?

21. Write an SQL command to illustrate the use of nested queries.

22. How will you remove a view?

23. Explain UNIQUE constraint in DBMS.

24. Explain GROUP BY clause in SQL with syntax and example.

25. What do you mean by dead lock in a DBMS?

26. What is timestamp ordering protocol?

<div align="right">(8 × 2 = 16 Marks)</div>

<div align="center">SECTION – C</div>

<div align="center">[Short Essay]</div>

[Not to exceed 120 words, answer any six questions. Each questions carries 4 marks]

27. Explain various types of relationship in ER diagrams with examples.

28. Explain the concept of UNION operator with example.

29. Explain CREATE TABLE and INSERT statements with syntax and examples.

30. Explain the use of DISTINCT keyword with an example.

31. Explain domain constraints.

32. Explain the desirable properties of a Transaction.

33. Explain the aggregate functions in SQL.

34. Explain entity integrity constraint.

35. Explain UPDATE and DELETE statements with syntax and examples.

36. What is the purpose of ORDER BY clause? Explain with an example.

37. Explain functional dependency with an example.

38. Explain LEFT OUTER JOIN and RIGHT OUTER JOIN with syntax and examples.

<div align="right">(6 × 4 = 24 Marks)</div>

## SECTION – D

## [Long Essay]

[Answer **any two** questions. Each question carries **15** marks]

39. Explain the concept of generalization and specialization in ER models with examples.

40. Briefly explain the symbols used in ER diagrams. Draw an ER diagram for a college management system.

41. Explain in detail, the advantages of DBMS.

42. Explain 3NF and Boyce Codd normal forms with examples.

43. Explain various usage of ALTER TABLE command with examples.

44. Explain the concept of binary locks in concurrency control.

**(2 × 15 = 30 Marks)**

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### Third Semester B.Sc./B.C.A. Degree Examination, January 2023.

### Career Related First Degree Programme under CBCSS

### Group 2(b) – Computer Science/Computer Applications

### Core Course/Complementary Course

### CS 1344/CP 1331 – VALUE EDUCATION

### (2019 – 2020 Admission)

Time : 3 Hours          Max. Marks : 80

### SECTION – A (Very Short answer type)

In One word to maximum of one sentence. Answer **all** questions :

1. What is a chemical hazard?

2. List out the various colors and what they represent in the NSS flag

3. What is climate change?

4. Define Self-awareness

5. NSS falls under which ministry of the GOI?

6. What is diseased organ donation?

7. Explain Disaster relief shelter briefly

8. What is Vayu Sainik camp?

9.   Define resilience

10.  What is NIC?

SECTION – B  (Short Answer)

Not to exceed one paragraph, answer **any eight** questions. Each question carries **2 marks**

11.  What does advanced leadership course aim to achieve?

12.  Examine ways to ensure emergency food assistance during a disaster.

13.  Discuss the role of voluntary sector in Youth development  activities

14.  What are the some of the exemplary achievements of NCC?

15.  Differentiate between a disaster and a *hazard.*

16.  Write on the process of maintain a volunteer diary.

17.  What is disaster recovery and what is its importance?

18.  Discuss the objectives of RDC.

19.  Examine ways to reduce public health risks disasters.

20.  What are the regular activities organized as part of NSS programs?

21.  Explain the family preparedness plan for family emergencies.

22.  Comment on the functioning of army attachment Camp.

23.  Write on the ethical issues associated will organ donation. .

24.  Differentiate between the Air wing and Naval Wing

25. Examine the importance of time management and ways to implement it in day to day lives.

26. Analyze the importance of sanitation in disaster management.

**(8 × 2 = 16 Marks)**

## SECTION – C (Short essays)

Not to exceed **120** words, answer **any six** questions. Each question carries **4** mark

27. Comment on ways to address the differential impact of natural disaster on various communities.

28. Discuss effective and sustainable ways of waste management in disaster torn areas

29. How does these youth organizations priorities education and social justice through their activities?

30. What are the key features of an evacuation plan during an emergency?

31. Examine the NSS methodology of conducting Surveys.

32. Critically examine the social and environmental implications of disasters.

33. Discuss the main highlights of the newly drafted National Youth Policy.

34. What are the key takeaways from Covid 19 response for risk management during a pandemic?

35. Analyze the various youth programs organized by the GOI.

36. Write on the ways of emergency response to incidents of terrorist attacks

37. Examine the urban rural difference in disaster resilience

38. Highlight the relevance and benefits of youth exchange programs

**(6 × 4 = 24 Marks)**

## SECTION – D (Long Essay)

Answer **any two** questions. Each Question carries **15** marks

39. Substantiate on the organizational structure, roles and responsibilities of NSS

40. Critically examine the importance of students partaking in the implementation of social welfare measures and means to do so.

41. Trace the history of Organ donation and explore its legislation from a global perspective.

42. Discuss the History of NCC along with its duties and functions.

43. Analyze the significance of disaster management with special reference to India.

44. Define and explain the Life skills which are instrumental in an individual's life.

**(2 × 15 = 30 Marks)**

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## Third Semester B.C.A. Degree Examination, January 2023

### Career Related First Degree Programme under CBCSS

### Group 2(b) – Computer Applications

### Core Course

### CP 1341 : COMPUTER NETWORKS

### (2021 Admission)

Time : 3 Hours

Max. Marks : 80

### PART – A (Very short answer questions)

Answer **all** questions. Each question carries **1** mark.

1. What do you mean by unicasting?

2. Mention two advantages of computer networks.

3. What do you mean by flow control?

4. What do you mean by connection-oriented protocol?

5. What is a 3G network?

6. Expand FDM.

7. List two wired transmission media.

8. What do you mean by adaptive routing techniques?

9. What do you mean by tunneling?

10. List out uses of coaxial cable.

**(10 × 1 = 10 Marks)**

PART – B (Brief answer questions)

Answer **any eight** questions. Each question carries **2** marks.

11. Explain various types of mobile systems.

12. Short note on stop and wait protocol.

13. Write note on gateways.

14. Compare half duplex and full duplex transmission modes.

15. Explain time division multiplexing.

16. Define the following

    (a) Routing

    (b) Client server model.

17. Write note on wireless LAN.

18. Explain the terms bit rate and baud rate.

19. What do you mean by microwave transmission?

20. Mention two uses of unguided transmission media.

21. Explain the need of data link layer.

22. What do you mean by MTU of a network?

23. What is a datagram?

24. Explain the term packet fragmentation.

25. What is a switch?

26. What are the differences between packet switching and circuit switching?

<div align="right">(8 × 2 = 16 Marks)</div>

### PART – C (Short essay type questions)

Answer **any six** questions. Each question carries **4** marks.

27. Compare various network topologies.

28. Write short note on twisted pair.

29. Explain communication satellite in detail.

30. Explain Go back N ARQ and selective Repeat ARQ.

31. Write short note on RFID and sensor networks.

32. Explain the various layers in TCP/IP.

33. Write a short note on an algorithm to find shortest path between two networks.

34. Write short note on MIME.

35. Write short note on GSM.

36. Short note on various network types.

37. Explain uses of bridges and routers.

38. Write short notes on IPv4.

<div align="right">(6 × 4 = 24 Marks)</div>

## PART – D (Long essays)

Answer **any two** questions. Each question carries **15** marks.

39. Explain various layers and its functionalities of ISO OSI reference model.

40. Explain various types of wireless transmission.

41. Explain error detection and correction mechanisms.

42. Explain various multiple access protocols.

43. Explain various routing algorithms.

44. Explain IP in detail.

**(2 × 15 = 30 Marks)**