

(Pages : 3)

G – 2670

Reg. No. :

Name :

Second Semester B.Sc./B.C.A. Degree Examination, May 2019

Career Related FDP Under CBCSS

Group 2 (b) — Computer Science/Computer Applications

CS 1221/CP 1241 — ENVIRONMENTAL STUDIES

(2015-2017 Admissions)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Very Short Answer type. One word to maximum of 1 sentences.
Answer **all** questions :

1. What do you mean by food chain?
2. What are secondary pollutants?
3. Define biodiversity.
4. Name any two endemic species of mammals of Western Ghats.
5. What is point source pollution?
6. Expand (a) UNEP (b) CBD.
7. World Wetland Day is celebrating on _____ of every year.
8. Name any two biodiversity hotspots of Asian region.

P.T.O.

9. _____ disease is caused by lead (Pb).

10. What do you mean by invasive alien species?

(10 × 1 = 10 Marks)

SECTION – B

(Short answer not to exceed one paragraph, Answer **any eight** questions. Each question carries **2** marks.)

11. Write a note on human rights.

12. Briefly explain about relevance of value based education.

13. What is an ecological foot print?

14. Explain the consumptive values of biodiversity.

15. Write about the energy flow in ecosystem.

16. What do you mean by biodiversity hotspot?

17. Write a note on family welfare programme.

18. Which are the natural causes of water pollution?

19. Briefly explain about sustainable consumption.

20. What do you mean anaerobic composting?

21. What is nuclear holocaust?

22. Explain about three "R's in MSW.

(8 × 2 = 16 Marks)

SECTION – C

Short essay not to exceed one paragraph, Answer **any six** questions. Each question carries **4** marks)

23. Write a note on ozone depletion and its effects.
24. Briefly explain about renewable and non renewable energy sources.
25. Write a note on rainwater harvesting.
26. How individual can play in the conservation of environment?
27. Critically analyse the causes and remedial measures for human wildlife conflict.
28. Explain about the waste land reclamation and its significance.
29. Briefly explain about energy flow in ecosystems with suitable illustrations.
30. Explain the comment 'without biodiversity conservation, people cannot live on earth.
31. Write about the social issues of urban development.

(6 × 4 = 24 Marks)

SECTION – D

Long essay Answer **any two** questions. Each question carries **15** marks)

32. Write an essay on watershed management and its significance with suitable examples.
33. Explain about the global warming and its consequent effects.
34. Explain the role of biodiversity conservation for the well being of people with suitable examples.
35. Discuss about the solid waste management and its significance to the current world.

(2 × 15 = 30 Marks)

(Pages : 3)

G – 2692

Reg. No. :

Name :

Second Semester B.C.A. Degree Examination, May 2019

Career related FDP under CBCSS

Core Course

CP 1242 — OBJECT ORIENTED PROGRAMMING

(2018 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Very short answer type. One word to maximum of one sentence, Answer **all** questions

1. What is *macro*?
2. What do you mean by `<iostream,h>`?
3. What do you mean by typecasting?
4. What is *polymorphism*?
5. What do you mean by *object code*?
6. What is header *file*?
7. What do you mean by an array?

P.T.O.

8. Write the names of two C++ keywords.
9. What is *binding*?
10. What do you know about data hiding?

(10 × 1 = 10 Marks)

SECTION – B

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

11. Write C++ program to check the given number is odd.
12. What do you mean by message passing?
13. Write a short paragraph on data abstraction.
14. Write a C++ program to compute the sum of first N natural numbers.
15. What do you mean by destructor?
16. What do you know about *function prototype*?
17. Write down the structure of a C++ program.
18. Explain the concept of bottom- tip approach.
19. What do you mean by logical error?
20. Write a short note on the benefits of OOP.
21. Write a note on C++ data types.
22. What is inline function? Explain.

(8 × 2 = 16 Marks)

SECTION – C

Short essay Not to exceed **120** words. Answer any **six** questions, Each question carries **4** marks.

23. Write a paragraph on exception handling in C++.
24. What do you mean by *constructor*? Explain with an example.
25. Explain the concept of multilevel inheritance with the support of an example.
26. Write C++ program to compute the distance between two points.
27. Write a C++ program to demonstrate class.
28. What do you mean by this pointer? Explain.
29. What do you mean by *friend function*? Explain.
30. What do you mean by *operator overloading*? Explain with an example.
31. Write a C++ program to find the transpose of a matrix.

(6 × 4 = 24 Marks)

SECTION – D

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

32. Compare the features of Procedure Oriented Programming with those of Object Oriented Programming.
33. Explain the concept of inheritance in detail with examples.
34. Write a C++ program to compute the value of nCr , Where $nCr = \frac{n!}{r!(n-r)!}$
35. Explain the concept of dynamic memory allocation by using new and delete operators.

(2 × 15 = 30 Marks)

(Pages : 3)

G – 2655

Reg. No. :

Name :

Second Semester B.Sc./B.C.A. Degree Examination, May 2019

Career Related FDP Under CBCSS

Group 2(b) – Computer Science/Computer Applications

CS 1242/CP 1242 – OBJECT ORIENTED PROGRAMMING

(2014 to 2017 Admissions)

Time : 3 Hours

Max. Marks : 80

SECTION – A (Very Short Answer Type)

one word to maximum of **one** sentence, Answer **all** questions.

1. Explain structured programming.
2. Define class.
3. Describe abstraction.
4. What is the use of ofstream() ?
5. Write the syntax for creating a new object for a class.
6. Define constructor.
7. Write a short note on 'delete' operator.
8. What is inheritance?
9. Define pure virtual function.
10. Define Encapsulation.

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B (Short Answer)

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

11. What is message passing?
12. Compare structures and classes in C++.
13. Explain scope resolution operator.
14. What is meant by friend function?
15. What are static data members?
16. Define runtime polymorphism.
17. Compare multiple and multilevel inheritance.
18. Describe anonymous objects.
19. Describe early binding.
20. Define abstract class.
21. What is dynamic objects?
22. How are multiple catch blocks defined?

(8 × 2 = 16 Marks)

SECTION – C (Short Essay)

not to exceed 120 words, answer any **six** questions. Each question carries **four** marks.

23. How reusability is achieved in Object Oriented programming?
24. Write a C++ program to sort a set of numbers in ascending order.
25. Explain the use of 'this' pointer with example.
26. What is virtual destructor? Explain with example.
27. Explain copy constructor with example.
28. Explain access modifiers in detail.
29. Differentiate base class and derived class.
30. Explain virtual base class with example.
31. What do you mean by pointers to derived class objects? Give example.

(6 × 4 = 24 Marks)

SECTION – D (Long Essay)

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

32. Explain the key concepts in Object Oriented Programming.
33. (a) Explain '+' operator overloading with example.
(b) Explain type conversion with example.
34. Explain public, private and protected inheritance with suitable example.
35. Explain exception handling with examples.

(2 × 15 = 30 Marks)

(Pages : 3)

G – 2639

Reg. No. :

Name :

Second Semester B.C.A. Degree Examination, May 2019

CAREER RELATED FDP UNDER CBCSS

Group 2(b) — Computer Applications

CP 1242

OBJECT ORIENTED PROGRAMMING

(2013 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A (Very Short Answer Type)

One word to maximum of **one** sentences, Answer **all** questions.

1. What is an object?
2. What is encapsulation?
3. How do we invoke a destructor function?
4. What is a new operator?
5. Define Early binding.
6. Name three exception handling operations in C++.
7. Write the access specifiers used in CPP.
8. What are dynamic objects?
9. What is increment operator?
10. Define Virtual function.

(10 × 1 = 10 Marks)

P.T.O.

SECTION – B (Short Answer)

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

11. Distinguish object oriented and procedure oriented programming.
12. What do you mean by reusability?
13. What is the purpose of delete operator?
14. What are the applications of virtual base class?
15. List the properties of destructor function.
16. What is meant by object slicing?
17. List the applications of file streams in object oriented Programming.
18. What is an inline function? Write the rules associated with it.
19. Write note on Name Spaces.
20. Distinguish input and output streams.
21. What is meant by structured programming?
22. Define Macros.

(8 × 2 = 16 Marks)

SECTION – C (Short Essay)

Not exceeding 120 words, answer any **six** questions. Each question carries 4 marks.

23. Briefly explain the evolution of OOP.
24. What do you mean by operator overloading? Explain with example.
25. Explain the concept of message passing with an example.
26. What do you mean by compile time polymorphism? How it differ from run time polymorphism?
27. Describe the Exception handling features in CPP.
28. Explain the concepts of anonymous objects and its applications in CPP.
29. What are function templates? How it differ from macros?
30. Distinguish between early binding and late binding with suitable illustrations.
31. Write a CPP program to create a file stream containing details such as item number, description and price.

(6 × 4 = 24 Marks)

SECTION – D (Long Essay)

Answer any **two** questions, Each question carry **15** marks.

32. Define Inheritance. Explain its different forms.
33. Write a CPP program to implement the function of a calculator with addition, multiplication and subtraction operation using operator overloading concept.
34. Compare and review the features of C++ over C.
35. Explain how loop structure can be implemented in CPP. Distinguish between entry control and exit control loop with examples.

(2 × 15 = 30 Marks)

(Pages : 3)

G – 2638

Reg. No. :

Name :

Second Semester B.C.A. Degree Examination, May 2019

CAREER RELATED FDP UNDER CBCSS

Group 2(b) — COMPUTER APPLICATIONS

CP 1241 : COMPUTER ORGANIZATION AND ARCHITECTURE

(2013 Admission)

Time : 3 Hours

Max. Marks : 80

PART – A (Very Short Answer type)

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

1. What is memory address?
2. What is instruction cycle?
3. Expand CISC.
4. What is TLB?
5. Write full form for EEPROM.
6. Expand USB.
7. Define polling.
8. What is PCI?
9. What is display adapter?
10. What is grid computing?

(10 × 1 = 10 Marks)

P.T.O.

PART – B (Short Answer)

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

11. What are addressing modes?
12. How many instructions are there in 8085?
13. What are the different types of branching instruction in 8085?
14. What is the maximum memory size that can be addressed by 8086?
15. What is hit ratio?
16. What are the features of PROM?
17. What is segmentation?
18. Explain handshaking.
19. What is programmed I/O data transfer?
20. Write a note on the function of UART.
21. What is half duplex transmission system?
22. What are the functions of modem? **(8 × 2 = 16 Marks)**

PART – C (Short Essay)

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

23. What is the difference between fetch and decode of instruction?
24. What is RISC? What are the features of RISC?
25. Discuss the principle of virtual memory system.

26. Write short note on register organization of CPU.
27. Explain the single bus structure in Accessing I/O devices.
28. How does call to ISR differ from a function (routine) call?
29. Explain the DMA transfer modes.
30. Discuss the parallelism in uniprocessor system.
31. Write a note on motherboard architecture.

(6 × 4 = 24 Marks)

PART – D (Long Essay)

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

32. What are the different mapping techniques in cache memory? Explain.
33. Explain the design of simple ALU.
34. Explain the asynchronous data transfer in detail.
35. Explain the input-output processor with block diagram.

(2 × 15 = 30 Marks)

(Pages : 3)

G – 2654

Reg. No. :

Name :

SECOND SEMESTER B.Sc./B.C.A. DEGREE EXAMINATION, MAY 2019

CAREER RELATED FDP UNDER CBCSS

Group 2(b) - COMPUTER SCIENCE/COMPUTER APPLICATIONS

CS 1241/CP 1243

DATA STRUCTURES

(2014 – 2017 Admissions)

Time : 3 Hours

Max. Marks : 80

SECTION – A (Very Short Answer Type)

*(One word to maximum of one sentences, Answer **ALL** questions)*

1. What are arrays?
2. What is meant by dynamic data structures?
3. Define pointer.
4. What do you mean by push operation?
5. Define Tree.
6. What is binary search tree?
7. Write one use of hashing.
8. Define graph.
9. What is tree traversal?
10. What are expression trees?

(10 × 1 = 10 marks)

P.T.O.

SECTION – B (Short Answer)

(Not to exceed one paragraph, Answer any **EIGHT** questions.
Each question carries 2 marks)

11. Define structure.
12. What do you mean by linked list?
13. Define FIFO.
14. What is polish notation?
15. Define in-order tree traversal.
16. What is meant by doubly linked list?
17. Convert the following infix expression into postfix expression
 $A*(B+D)/E-F*(G+H/K)$
18. What is a weighted graph?
19. Write any two applications of trees.
20. What is meant by linear search?
21. What is a regular graph?
22. Define dequeue. (8 × 2= 16 marks)

SECTION-C [Short Essay]

(Not exceeding 120 words, answer any **SIX** questions.
Each question carries 4 marks)

23. Briefly explain the applications of data structure.
24. What is a stack? How it can be represented using arrays?
25. What is circular linked list? How it differ from doubly linked list?

26. Write a routine to insert an element in an ordinary queue
27. Write an example program to illustrate the passing of structure to a function
28. Distinguish between breadth first search and depth first search.
29. What is meant by time complexity? Explain its importance in evaluating the performance of an algorithm
30. What is a hash function?. Discuss its importance in search operation
31. Write an algorithm to search an element in an array using binary search.
(6 × 4 = 24 marks)

SECTION-D [Long Essay]

[Answer any **TWO** questions, Each question carry Fifteen marks]

32. What are the two basic operations associated with stack? Write algorithm for these operations
 33. Discuss algorithm to convert infix expression to postfix expression with the support of stack.
 34. What is meant by sorting? Discuss two important sorting methods by comparing relative advantage and disadvantage of each
 35. Along with neat diagram of graph explain various graph theory terminologies.
(2 × 15 = 30 marks)
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(Pages : 6)

G – 2641

Reg. No. :

Name :

Second Semester B.C.A. Degree Examination, May 2019

Career Related First Degree Programme under CBCSS

Group 2 (b) Complementary Course

MM 1231.9 MATHEMATICS II

(2013 admission onwards)

Time : 3 Hours

Max. Marks : 80

PART – A

Answer **all first ten** questions are compulsory Each question carries 1 marks. Answer in one word to maximum of two sentences :

1. What is meant by 'proof by contradiction'?
2. Give the truth table of $p \leftrightarrow q$.
3. Define characteristic function.
4. Give an example of a partially ordered set.
5. Is every relation function? Justify.
6. Define ring homomorphism.

P.T.O.

7. Give an example of a complete bipartite graph.
8. Is the set \mathbb{R} of real numbers under multiplication a group? Justify.
9. Show that in a group $G, (ab)^{-1} = b^{-1}a^{-1}$, for $a, b \in G$.
10. How will you enter a matrix in MATLAB?

(10 × 1 = 10 Marks)

PART – B

Answer **any eight** questions from among the questions 11 to 22. They carry 2 marks each

11. Prove that $\sqrt{2}$ is irrational by the method of contradiction.
12. Prove that $p \rightarrow q$ is logically equivalent to $\neg p \vee q$.
13. Check whether the following argument is valid $p \rightarrow q \begin{array}{l} \neg p \\ \neg q \end{array}$.
14. Let $X = \{a, b, c\}$ and $Y = \{0, 1\}$. List all the functions from x to y .
15. Draw the Hasse diagram of the relation 'x divides y' on the set $A = \{1, 2, 3, 4, 6, 8, 9, 12, 18, 24\}$.
16. Let \equiv be the relation on the set \mathbb{R} of real numbers defined by $a \equiv b$ if $b - a \in \mathbb{Z}$. show that \equiv is an equivalence relation.

17. Let G be the set of all non-zero real numbers and let $a * b = \frac{ab}{2}, a, b \in G$. Show that $(G, *)$ is an abelian group.
18. Consider the semigroup $(\mathbb{Z}, +)$ and equivalence relation R on \mathbb{Z} by $aRb \Rightarrow 2$ divides $a-b$. Is this a congruence relation?
19. Prove that rank of any well-formed polish formula is 1 and the rank of any proper head of a polish formula is greater than or equal to 1.
20. Show that a graph G is a tree if and only if there is a unique path between any two vertices.
21. Define incidence matrix of a graph and find the same for complete graph on 4 vertices.
22. Draw the transition diagram for the FSA, $M = \langle I, Q, q_0, \delta \rangle$, where $I = \{a, b\}$, $Q = \{q_0, q_1, q_2\}$, $F = \{q_0, q_1\}$ and δ is as in the table

δ	a	b
q_0	q_0	q_1
q_1	q_0	q_2
q_2	q_2	q_2

Also check whether the strings $aaab$ and $baaa$ are acceptable to M .

(8 × 2 = 16 Marks)

PART - C

Answer **any six** questions from among the questions 23 to 31. They carry 4 marks each.

23. Obtain a disjunctive normal form and a conjunctive normal form of the formula $p \wedge (p \rightarrow q)$. Also show that the disjunctive normal form of a formula need not be unique.

24. Check whether the compound proposition

$((p \vee q) \wedge \neg(\neg p \wedge (\neg p \vee \neg r))) \vee (\neg p \wedge \neg q) \vee (\neg p \wedge \neg r)$ is a tautology or not.

25. Prove that a function $f : A \rightarrow B$ is invertible if and only if f is both one-one and onto.

26. Sketch the graph the following functions

(a) $f(x) = x^2 + x - 6$

(b) $g(x) = x^3 - 3x^2 - x + 3.$

27. Find all partitions of $S = \{a, b, c, d\}$.

28. Let $*$ be defined on $R - \{-1\}$ as $a * b = a + b + ab$. Determine whether $(R - \{-1\}, *)$ is an abelian group.

29. Let $(R, +, *)$ be a ring such that $a * a = a$ for every $a \in R$. Prove the following:

(a) $a + a = 0, \forall a \in R$

(b) $*$ is commutative.

30. Explain Warshal's algorithm with a suitable example.

31. Find the language recognized by the NDFSA : $M=(I, Q, q_0, \delta, F)$ where $I=\{a, b\}$,

$Q=\{q_0, q_1, q_2\}$, $F=\{q_2\}$ and δ is given by

δ	a	b
q_0	$\{q_0, q_1\}$	ϕ
q_1	ϕ	$\{q_2\}$
q_2	ϕ	$\{q_2\}$

(6 × 4 = 24 Marks)

PART – D

Answer **any two** questions from among the questions 32 to 35. They carry 15 marks each.

32. (a) Check whether $(p \rightarrow q) \wedge (q \rightarrow r) \rightarrow (p \rightarrow r)$ is a tautology or not.

(b) Test the validity of the argument:

If two sides of a triangle are equal then the opposite angles are equal.

Two sides of a triangle are not equal

The opposite angles are not equal

33. (a) Explain single-source shortest path algorithm with an example.

(b) Find the domain D and the inverse of each of the functions

(i) $f(x) = x^3 + 5$

(ii) $f(x) = \frac{x-2}{x-3}$

34. For any three sets A, B, C prove the following:

(a) $A - (B - C) = (A - B) - C$ if and only if $A \cap C = \phi$.

(b) $(A - B) - C = A - (B \cup C) = (A - C) - (B - C) = (A - C) - B$.

(c) $(A \cap B) \cup C = A \cap (B \cup C)$ if and only if $C \subseteq A$.

35. (a) Write short notes on Hamming codes.

(b) State and prove DeMorgan's laws.

(2 × 15 = 30 Marks)

Bc A

(Pages : 4)

G – 2614

Reg. No. :

Name :

Second Semester B.Sc./B.Com./B.B.A./B.C.A./BSW/
BMS/B.Voc. Degree Examination, MAY 2019.

CAREER RELATED FIRST DEGREE PROGRAMME UNDER CBCSS-2(b)

Language Course II

EN 1211.4./EN 211 : WRITING AND PRESENTATION SKILLS

(2013 Admission Onwards)

Time : 3 Hours

Max. Marks : 80

Answer **all** questions :

- I. Correct the following sentences. If the sentences are correct, write "No Error"!
 1. I have been to Africa recently.
 2. They discussed about the whole matter.
 3. Neither of the boys have returned.
 4. We are playing tennis every day.
 5. He went to work despite of his illness.
 6. She is busy at the work.
 7. He is clever but he lacks of experience.
 8. I have written to every my friend I have.
 9. I don't speak either French or German.
 10. I have decided to quit my job a week ago.

(10 × 1 = 10 Marks)

P.T.O.

II. Answer any **eight** of the following questions in one or two sentences each :

11. What is a topic sentence?
12. Define a sentence.
13. What is meant by enumeration with respect to the construction of a paragraph?
14. How is spoken communication different from written communication?
15. What is meant by synopsis?
16. What is meant by an analytical essay?
17. What is the word used to describe etiquette on the Internet?
18. Name the different types of business letters.
19. Why should you avoid using capital letters throughout in an email?
20. Write two advertising lines for a newly launched magazine.
21. Punctuate the following sentence :

looking straight at her he said i cant help you.
22. Mention the names of some of the different types of note making.

(8 × 2 = 16 Marks)

III Answer any **six** as directed :

23. Write a letter to the Bank Manager for reissuing your ATM Card.
24. Construct a dialogue on the following topic in about 80 words.

You arrive at a new city and get lost. You ask a stranger for directions.
25. Prepare a report on an awareness programme conducted towards 'Banning Plastics' in your college.

26. Prepare a functional resume highlighting your skills and experience..
27. What are the characteristic features of an essay?
28. How can a power point presentation be made effective?
29. Prepare a bunch of questions for conducting a survey on the rising unemployment in your locality.
30. Write a précis of the following passage reducing it to **one third** of its length.

I appreciate the idea of arranging a trip to Srinagar for our school children. Srinagar is a beautiful place and it would be nice if our students are able to see the mesmerizing sights of the place before they leave the school campus. However, with sporadic violence and militancy, it is no longer a safe place for such adventures. Moreover, for the students appearing for the board exams next March, a ten-day trip might be too long. Regarding other arrangements however, there doesn't seem to be much to worry about. For the trip, a luxury bus can be arranged and students can be lodged in a good hotel there. Most of the students would be able to bear the cost of expenses the proposed trip is likely to incur.

31. Write a paragraph of **80** words on Global Warming.

(6 × 4 = 24 Marks)

IV Answer any **two** of the following :

32. Write an essay on **any one** of the following in about two to three pages.
 - a. English as a Global Language
 - b. The Rise of Social Media
 - c. Child Labour

-
33. Write a project report on any one of the following topics :
- a. Population Explosion
 - b. Rise of road accidents.
 - c. Decline in alcoholism.
34. Create content for 15-20 slides on any one of the following Power Point Presentation.
- a. The importance of exercise.
 - b. The decline of reading as a habit.
 - c. Celebrity culture.
35. Write an essay elaborating the common pitfalls associated with Email Writing.

(2 × 15 = 30 Marks)

BCA

(Pages : 4)

G – 2614

Reg. No. :

Name :

Second Semester B.Sc./B.Com./B.B.A./B.C.A./BSW/
BMS/B.Voc. Degree Examination, MAY 2019.

CAREER RELATED FIRST DEGREE PROGRAMME UNDER CBCSS-2(b)

Language Course II

EN 1211.4./EN 211 : WRITING AND PRESENTATION SKILLS

(2013 Admission Onwards)

Time : 3 Hours

Max. Marks : 80

Answer **all** questions :

- I. Correct the following sentences. If the sentences are correct, write "No Error"!
1. I have been to Africa recently.
 2. They discussed about the whole matter.
 3. Neither of the boys have returned.
 4. We are playing tennis every day.
 5. He went to work despite of his illness.
 6. She is busy at the work.
 7. He is clever but he lacks of experience.
 8. I have written to every my friend I have.
 9. I don't speak either French or German.
 10. I have decided to quit my job a week ago.

(10 × 1 = 10 Marks)

P.T.O.

(Pages : 3)

G – 2689

Reg. No. :

Name :

Second Semester B.C.A./B.Sc. Degree Examination, May 2019

CAREER RELATED FDP UNDER CBCSS

Group 2(b) – Computer Science/Computer Applications

CP 1241/CS 1221 : ENVIRONMENTAL STUDIES

(2018 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A (Very Short Answer Type)

One word to maximum of **one** sentences, Answer **all** questions. Each question carries **1** mark.

1. Define Ecosystem.
2. A _____ is a bund constructed of stone and wrapped in galvanized chain link.
3. What is acid rain?
4. _____ was the first State in India to regulate the manufacture and use of plastics.
5. What is pollution?
6. Define 'loading' with respect to sprinklers.
7. _____ is the primary energy source in our lives.

P.T.O.

8. Who is the father of Nuclear Power development in India?
9. _____ is a building block of both plant and animal tissues.
10. _____ is the worlds single largest contributor of green house gases.

(10 × 1 = 10 Marks)

SECTION – B (Short Answer)

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

11. Discuss the role of an individual in the conservation of natural resources.
12. What is soil erosion? How does it affect the food production?
13. Discuss the use of automatic sprinkler system. What are its basic parts?
14. What is In-Situ conservation?
15. From an ecological perspective, how are pollutants classified? Give examples.
16. List the four fundamental noise control techniques.
17. Describe the 3Rs principle in waste management
18. Describe Human development index.
19. Write about the energy cycle.
20. What is aquatic ecosystem?
21. What is biological prospecting?
22. Write notes on Chipko Silent Valley movement.

(8 × 2 = 16 Marks)

SECTION – C (Short Essay)

Not exceeding 120 words, answer any **six** questions. Each question carries **4** marks.

23. Write about Indias Biogeographic Zones.
24. Describe the control measures for air pollution.
25. What are the adverse effects of global warming?
26. Explain Vermi Composting.
27. Describe the mitigation policies and strategies to reduce the effects of cyclones.
28. Write about nuclear holocaust
29. Describe the control measures of urban and industrial wastes.
30. Write about the endemic and endangered species of India.
31. Describe the factors necessary when selecting an appropriate fire detection system.

(6 × 4 = 24 Marks)

SECTION – D (Long Essay)

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

32. Explain in detail about integrated treatment methods in soil and water conservation.
33. Briefly explain the causes of water pollution.
34. What is Biodiversity? Discuss the different levels of biological diversity.
35. Discuss in detail on the structure and functions of an ecosystem.

(2 × 15 = 30 Marks)

(Pages : 4)

G – 2693

Reg. No. :

Name :

Second Semester B.C.A. Degree Examination, May 2019

Career Related FDP Under CBCSS

Group 2(b) – Computer Applications

CP 1243 : DATA STRUCTURES

(2018 Admission)

Time : 3 Hours

Max. Marks : 80

SECTION – A

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

1. Define linked list.
2. State whether True or False: The size of a tree is equal to the total number of nodes.
3. A graph with multiple edges and/or a loop is called a _____
4. What is hash table?
5. Degree of a leaf node is _____
(a) 0 (b) 1 (c) 2 (d) 3
6. A line in a grocery store represents a
(a) Stack (b) Queue (c) Linked List (d) Array

P.T.O.

7. Slack is a _____
(a) LIFO (b) FIFO (c) FILO (d) LILO
8. In a circular linked list, the last node contains a pointer to the _____ node of the list.
9. State whether True or False: A binary tree of n nodes has exactly $n-1$ edges.
10. The process of examining memory locations in a hash table is called.
(a) Hashing (b) Collision (c) Probing (d) Addressing

(10 × 1 = 10 Marks)

SECTION – B

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

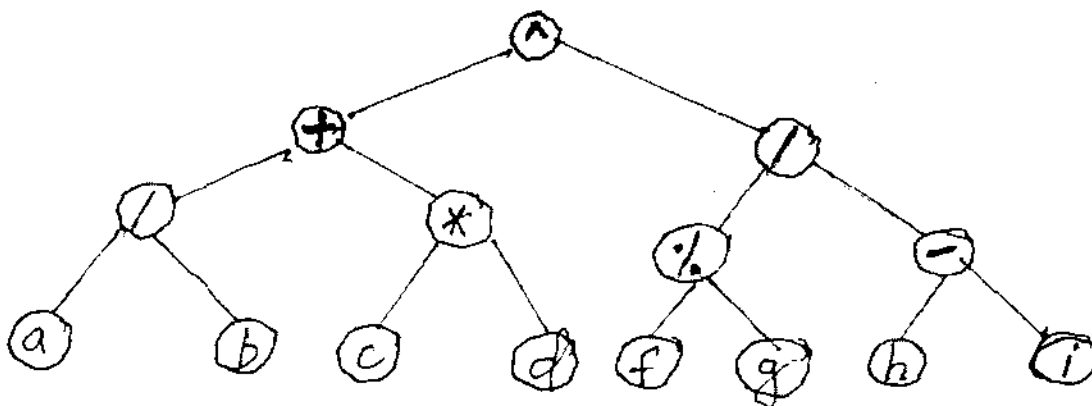
11. Give the structure of a node in a linked list.
12. What are directed graphs?
13. Express $(A + B) * C$ in Polish notation.
14. Give the algorithm for traversing a linked list
15. Distinguish between static and dynamic data structures.
16. What is linear hashing?
17. What is a deque?
18. What is a doubly linked list?
19. List the ways in which graphs are represented in memory.
20. What is a hash function? Give the properties of a good hash function
21. Differentiate between internal sorting and external sorting.
22. Define forest.

(8 × 2 = 16 Marks)

SECTION - C

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

23. Give the Algorithm to search for a given value in a binary search tree.
24. What do you mean by O notation? Give the complexity of Linear Search Algorithm.
25. Differentiate between Linked Lists and arrays.
26. Explain the rules for ceating a binary tree from a genetal tree.
27. Compare selection sort and bubble sort.
28. Describe the PUSH and POP operations.
29. Distinguish between linear and nonlinear data structures.
30. Given the binary tree, write down the expression that it represents.



31. How does bubble sorting work? Give algorithm.

(6 × 4 = 24 Marks)

SECTION – D

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

32. Explain the various operations on linked lists.
33. Describe FIFO and LIFO data structures. Discuss the different ways of implementing these data structures.
34. Discuss the two graph traversal algorithms.
35. Give the in-order, pre-order and post—order traversal algorithms of binary tree.

(2 × 15 = 30 Marks)
