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Reg. No. : .....

Name : .....

**Second Semester B.Sc / BCA Degree Examination, September 2022**

**Career Related First Degree Programme Under CBCSS**

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

**Foundation course / Core course**

**CS 1221 / CP 1241 : ENVIRONMENTAL STUDIES**

**(2021 Admission)**

Time : 3 Hours

Max. Marks : 80

**SECTION – A**

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

1. Define Estuaries.
2. What is Environmental Pollutant?
3. What is atmosphere?
4. What are species?
5. What is environmental degradation?
6. What is Bio ethics?
7. What is a pesticide?
8. What is soil Pollution?

P.T.O.

9. What is Forest Eco System?
10. What is meant by rehabilitation?

**(10 × 1 = 10 Marks)**

### SECTION – B

Short Answer Type questions not exceeding one paragraph. Answer any **Eight** questions, each carries **2** marks.

11. What are Nuclear Hazards?
12. What are Industrial Wastes?
13. What is a hydroelectric project?
14. What is wind energy?
15. What are the impacts of Earthquakes?
16. What is the effect of usage of pesticides for agriculture?
17. Write a short note on Solid Waste Management?
18. What are the resources used for the energy?
19. What are the effects of drought to the humans?
20. What is meant by Inter State Water Dispute?
21. Discuss the Environmental impact of Nuclear Wastes.
22. Comment on "Narmada Case".
23. What are the rights of Tribal guaranteed under the Indian law?
24. Explain the objectives Water Act.
25. What is meant by Environmental Ethics?
26. What are the different causes of Air Pollution?

**(8 × 2 = 16 Marks)**

## SECTION – C

Short Essay Questions not exceeding 120 words. Answer any **six** questions each carries **4** marks.

27. Explain about the Bio Cycle.
28. Discuss the advantages of Solid Waste Management.
29. What are reserved forests in India?
30. What are the causes of Ozone Layer Depletion?
31. Comment on Environmental Policies in India.
32. Discuss the preventive measures for the management of Urban and Industrial Waste.
33. Discuss the Indian Legislations concerning Forest.
34. Explain the origin and development of Precautionary Principle in Indian Legal System.
35. What are the importances of healthy Environment?
36. What are the possible impacts of Global Warming?
37. Write a short note on Right to Development and Sustainable Development.
38. Explain on Population Expulsion v. Sustainable Development.

**(6 × 4 = 24 Marks)**

## SECTION – D

Long Essay Question. Answer **any two** questions, **each** carries **15** marks.

39. What are the Primary Agenda of Kyoto Protocol?
40. Briefly explain the impact of Pollution on sustainable development.
41. Discuss the Fire Detection System, and fire control systems to prevent the fire.

42. Define Biome. What are the different types of Biomes?
43. What are the objectives of United Nations Framework convention on climate change 1972?
44. Discuss about the legislation passed by the Government of India for the conservation of Water.

**(2 × 15 = 30 Marks)**

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**Second Semester B.C.A. Degree Examination, September 2022**

**Career Related First Degree Programme under CBCSS**

**Mathematics**

**Complementary Course for Computer Applications**

**MM 1231.9 : MATHEMATICS — II**

**(2020 Admission Onwards)**

Time : 3 Hours

Max. Marks : 80

**SECTION – I**

Answer **all ten** questions. They carry **1** mark each.

1. What is meant by Boolean Variable?
2. Define Fallacy.
3. Define a walk in a relation.
4. When do we say that a Fuzzy set is normal?
5. Give an example of a commutative Ring.
6. Define graph codes.
7. What is directed graph?

**P.T.O.**

8. Define Spanning tree of a graph.
9. Define Grammar.
10. Define Context Sensitive Grammar

(10 × 1 = 10 Marks)

### SECTION – II

Answer **any eight** questions from among the questions 11 to 26. They carry **2** marks each.

11. Check the validity of the argument

$$\begin{array}{l} \forall x P(x) \rightarrow Q(x) \\ \forall x \frac{Q(x) \rightarrow R(x)}{P(x) \rightarrow R(x)} \end{array}$$

12. Define the terms :

- (a) Contrapositive
- (b) Converse.

13. Construct the truth table for " $P \vee Q$ ".

14. (a) Write the converse of the statement "If there is rain, then there is forest".

- (b) Define Proposition.

15. Define a fuzzy subset with an example.

16. Define recursive function with an example.

17. If  $A = \{1, 2, 6, 9\}$  and  $B = \{2, 9, 11, 13, 16\}$ , then find
- (a)  $A \cup B$
  - (b)  $A - B$
  - (c)  $A \oplus B$
  - (d)  $A \times B$
18. Prove that  $(\mathbb{Z}, +)$  is an abelian group
19. Define
- (a) Infix Notation
  - (b) Polish Notation
20. (a) What are the three essential parts of an Ideal Communication System.  
(b) Define noise.
21. What is a graph? Define the terms "source" and "sink".
22. (a) Define articulation point.  
(b) What do you mean by biconnected component?
23. State the correctness of breadth-first search.
24. When do we say that a Grammar is regular? What is Context Free Grammar?
25. Define Finite State Transition System and Finite Automaton.
26. Define NFA.

**(8 × 2 = 16 Marks)**

### SECTION – III

Answer **any six** questions from among the questions 27 to 38. They carry **4** marks each.

27. (a) Prove that the sum of first 100 numbers  $1+2+3+\dots+100$  is 5050 by direct proof method.
- (b) Prove that  $\sqrt{2}$  is irrational.
28. What are the elements of a good proof? Explain.
29. Using the Principle of Mathematical Induction, prove that  $1+2+\dots+n = \frac{n(n+1)}{2}; n > 0$ .
30. Define the Characteristic function  $f_A$  of a subset  $A$  of a Universal Set  $U$ . Show that  $f_{A \cup B} = f_A \cdot f_B$ .
31. When do we say that a function is one-one? If a function  $f: \mathbf{Z} \rightarrow \mathbf{Z}$  is defined as  $f(x) = x^2 + x + 1$ , check whether  $f$  is one-one.
32. When do we say that a function is invertible? Check whether the functions are invertible or not:
- (a)  $f: \mathbf{Z} \rightarrow \mathbf{Z}$  where  $f(x) = x^2 - 1$
- (b)  $f: \mathbf{Z} \rightarrow \mathbf{Z}$  where  $f(x) = x + 4$
33. Define Boolean Algebra Let  $a, b, c$  be any elements in a Boolean algebra. Then prove that
- (a)  $a * a = a$
- (b)  $a * 0 = 0$



34. (a) Define a group.  
 (b) Let  $G$  be a group and let  $a, b, c$  be elements of  $G$ . Then  $ab = ac \Rightarrow b = c$ .
35. Write a note on Topological sort.
36. Describe depth-first search code to find a spanning tree of a graph.
37. Depict the derivation tree for the arithmetic expression  $(A + B)/C$ .
38. Using product construction, prove that  $L(M_3) = L(M_1) \cap L(M_2)$ .

(6 × 4 = 24 Marks)

#### SECTION – IV

Answer **any two** questions from among the questions 39 to 44. They carry **15** marks each.

39. (a) Obtain a Conjunctive Normal Form of  $P \wedge (P \rightarrow Q) \Leftrightarrow P \wedge (\neg P \wedge Q)$ .  
 (b) Show that  $Q \vee (P \wedge \neg Q) \vee (\neg P \wedge \neg Q)$  is a tautology.
40. (a) State and prove De Morgan's law.  
 (b) Obtain Disjunctive Normal form of  $P \wedge (P \rightarrow Q)$ .
41. (a) Describe Warshall's algorithm.  
 (b) Let  $A = \{1, 2, 3, 4\}$  and  $R = \{(1, 2), (2, 3), (3, 4), (2, 1)\}$ . Find the transitive closure by using Warshall's algorithm.
42. (a) (i) Define Hamming distance and describe its properties.  
 (ii) Find the Hamming distance between  $\langle 1, 1, 1, 0, 1 \rangle$  and  $\langle 0, 1, 1, 1, 0 \rangle$ .  
 (b) What is the minimum distance of a code? Explain with an example.  
 (c) Prove that a code can correct all combinations of  $k$  or fewer errors if and only if the minimum distance between any two code words is at least  $2k + 1$ .

43. (a) Let  $G$  be a directed graph. Then Prove that a vertex  $v$  is the root of a strongly connected component of  $G$  if and only if  $\text{lowlink}[v] = v$ .
- (b) Explain the concept of Single-source shortest path.
44. (a) Give an example of a simple four-state finite automaton with its transition diagram.
- (b) Prove that the function  $\hat{\Delta}$  commutes with set union.

**(2 × 15 = 30 Marks)**

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**Second Semester BCA Degree Examination, September 2022**

**Career Related First Degree Programme Under CBCSS**

**Group 2(b) Computer Applications**

**Core course**

**CP 1242 : OBJECT ORIENTED PROGRAMMING**

**(2021 Admission)**

Time : 3 Hours

Max. Marks : 80

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

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

1. What is POP?
2. What is Friend Function?
3. Write the meaning of static data member.
4. Define Inheritance.
5. Write the syntax of do-while.
6. What is Polymorphism?
7. How do we denote Destructor?
8. What do you know about Multiple Inheritance?
9. Define Pointer.
10. Define Class.

**(10 × 1 = 10 Marks)**

P.T.O.

### SECTION – B (Short Answer)

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

11. Write any four applications of OOPS.
12. What is the Basic structure of a C++ program?
13. Write the significance of GoTo statement.
14. What is Object Slicing?
15. Briefly explain the advantages of Object Orientation.
16. What is Late Binding?
17. Briefly explain function overriding.
18. Describe Pointers to Derived Class.
19. Explain Copy Constructor.
20. What is meant by Exception?
21. Write the purpose of this Operator.
22. Briefly explain Encapsulation concept.
23. What is Template?
24. Describe Containership.
25. Write a note on Calling Member Function.
26. What do you know about Constructor Overloading?

**(8 × 2 = 16 Marks)**

### SECTION – C (Short Essay)

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

27. Write a Program to generate first 20 Fibonacci members.
28. Explain the data types in C++.
29. Describe the types of Constructors.

30. Write a Program for Array of Objects.
31. Explain Dynamic Memory Allocation.
32. Describe the concept of Inline Function.
33. State the advantages of Inheritance.
34. Write a Program for Single Inheritance.
35. Demonstrate how Friend Function as a bridge between two Classes.
36. Differentiate formal and actual Arguments.
37. Write the importance of Scope Resolution Operator.
38. Describe Access Modifiers.

**(6 × 4 = 24 Marks)**

#### SECTION – D (Long Essay)

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

39. Explain the Characteristics of OOPS.
40. Describe the various Operators in C++.
41. With suitable example, explain the concept of Static Members.
42. Describe public, private and protected Inheritance with Example programs.
43. Explain the categories of Polymorphism.
44. Write a Program in C++ using Class and Objects, for Electricity Bill Preparation.

**(2 × 15 = 30 Marks)**

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**Second Semester B.C.A. Degree Examination, September 2022**

**Career Related First Degree Programme under CBCSS**

**Group 2 (b) – Computer Applications**

**Core Course**

**CP 1243 — DATA STRUCTURES IN C**

**(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 data structures?
2. What do you mean by array?
3. What is a stack?
4. Convert following equation from infix to prefix form  
 $A*B+C/D$
5. What is an input restricted deque?
6. Define a binary tree.
7. What is a directed graph?

P.T.O.

8. What do you mean by sorting?
9. What do you mean by collision handling?
10. What are the advantages of linked list over array?

(10 × 1 = 10 Marks)

PART – B (Brief Answer Questions)

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

11. Compare linear vs non linear data structures.
12. What are the various types of queue?
13. Write note on extended binary tree.
14. Convert following to postfix form.
  - (a)  $A*(B*C+D*E)+F$
  - (b)  $(A+B)*C+(D-E)/F+G$
15. Explain complete binary tree.
16. Explain memory representation for multidimensional arrays?
17. Write note on chaining.
18. Write notes on doubly linked list.
19. What do you mean by overflow condition?
20. What is the difference between array and linked list?
21. Explain applications of stack.
22. What is depth and level of a tree?
23. What is a sequential search?
24. Explain various types of graphs?

25. What is a circular queue?
26. What is a circular header linked list?

**(8 × 2 = 16 Marks)**

**PART – C (Short Essay Type Questions)**

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

27. Explain insertion operation in array.
28. Write short note on circular linked list.
29. Explain operations on stack in detail.
30. Explain evaluation of postfix expression in detail.
31. Write short note on expression tree.
32. Explain the various tree traversal operations.
33. Explain bubble sort with example.
34. Write short note on representation of binary tree.
35. Write short note insertion of a node to a binary tree.
36. What is meant by space complexity of an algorithm?
37. Write short note on sparse matrices.
38. Write notes on priority queue.

**(6 × 4 = 24 Marks)**

**PART – D (Long Essays)**

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

39. Explain various types of linked list.
40. Explain various linear queue operations.



41. Explain Binary Search tree.
42. Explain hashing in detail.
43. Explain DFS and BFS with example.
44. Explain binary search algorithm with C programming code.

**(2 × 15 = 30 Marks)**

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Reg. No. : .....

Name : .....

**Second Semester B.Sc./B.Com./B.B.A./B.C.A./B.S.W./B.M.S./  
B.Voc. Degree Examination, September 2022**

**Career Related First Degree Programme Under CBCSS**

**Language Course — English**

**EN 1211.4/EN 1211/EN 211 : ENGLISH FOR CAREER**

**(2020 Admission Onwards)**

**(Common for Career Related Group 2(b) Courses and  
B.Voc. Programmes)**

Time : 3 Hours

Max. Marks : 80

- I. Answer **all** the following questions. Follows the instructions given in the brackets wherever needed.
  1. The correct spelling of the word 'centinery' is \_\_\_\_\_
  2. The word that is the antonym of 'accurate' is \_\_\_\_\_
  3. \_\_\_\_\_ is another word for 'awful'.
  4. \_\_\_\_\_ is the noun form of 'accept'.
  5. \_\_\_\_\_ is a doctor who specialises in the treatment of lungs.
  6. How a pity that you couldn't come for the party. (Correct the sentence)
  7. Gymnastics \_\_\_\_\_ my favourite sport. (is/are) (Choose the correct answer from the brackets).
  8. These Scissors is very sharp. (Underline the error and correct the sentence).

9. It \_\_\_\_\_(be) an honour for him to lead and serve the company. (Use the correct tense form of the verb in brackets).
10. The students are all set to go to the camp. (Complete the sentence with a question tag).

(10 × 1 = 10 Marks)

II. Answer **any eight** of the following questions.

11. Provide one word substitutes for **any two** of the phrases

- (a) A doctor specialised in the treatment of stomach, digestive system, Gall bladder etc.
- (b) Writing based on author's personal memories.
- (c) A vehicle or machine designed to fly in outer space.
- (d) A systematic study of facts and sources to reach new conclusions.

12. Give the antonyms of **two** of the following words.

- (a) Discreet
- (b) Conformist
- (c) Instructor

13. Make sentences of your own with any **two** of the following phrasal verbs:

- (a) Look forward to
- (b) Bring up
- (c) Come Across
- (d) Put off

14. Choose the correct option from the brackets.

(a) She had invited many \_\_\_\_\_ personalities for her daughter's wedding.  
(Eminent/Imminent)

(b) The task is \_\_\_\_\_ for Shreya. (a piece of cake/a piece of chocolate).

15. Fill in the blanks using a collective noun from those given below.  
(haul, chest, pile, bunch, swarm)

(a) A \_\_\_\_\_ of bees came in when I opened the door.

(b) A \_\_\_\_\_ of books were kept intact.

16. Fill in the blanks using the suitable degree of the adjective given in brackets

(a) She is \_\_\_\_\_ than her sister. (Beautiful)

(b) Aadima is the \_\_\_\_\_ girl in the class. (Smarter/Smartest).

Correct the error in the words/Phrases given in italics: (For questions 17-19)

17. (a) *So a shame* that he treats his parents so!

(b) *Such tall* the children have grown!

18. (a) *Don't she know* that she has a seminar presentation tomorrow?

(b) *Are you know* where the books on English usage are kept in the library?

19. (a) *What number* of students are in the class?

(b) *Are I* supposed to finish reading this book by evening?

20. Complete the sentences using the correct option.

(a) \_\_\_\_\_ my pen anywhere here?

- (1) Did you seen
- (2) Have you seen
- (3) Do you see
- (4) No error

(b) \_\_\_\_\_ time is it now?

- (1) Which
- (2) What
- (3) When
- (4) How much

21. Pick the correct answer from the options given below :

(a) \_\_\_\_\_ to write the Psc test today?

- (1) Won't you coming
- (2) Had'nt you coming
- (3) Aren't you coming
- (4) No error

(b) She has promised me to come tomorrow for my party. I am sure she will definitely turn up. \_\_\_\_\_ she?

- (1) Won't she?
- (2) Has she?
- (3) Will she?
- (4) Is she?

22. Read the paragraph and answer the questions below :

Naval architects never claim that a ship is unsinkable, but the sinking of the passenger-and-car ferry Estonia in the Baltic surely should have never have happened. It was well designed and carefully maintained. It carried the proper number of lifeboats. It had been thoroughly inspected the day of its fatal voyage. Yet hours later, the Estonia rolled over and sank in a cold, stormy night. It went down so quickly that most of those on board, caught in their dark, flooding cabins, had no chance to save themselves: Of those who managed to scramble overboard, only 139 survived. The rest died of hypothermia before the rescuers could pluck them from the cold sea. The final death toll amounted to 912 souls. However, there were an unpleasant number of questions about why the Estonia sank and why so many survivors were men in the prime of life, while most of the dead were women, children and the elderly.

1. One can understand from the reading that
  - (A) the lifesaving equipment did not work well and lifeboats could not be lowered
  - (B) design faults and incompetent crew contributed to the sinking of the Estonia ferry
  - (C) 139 people managed to leave the vessel but died in freezing water
  - (D) naval architects claimed that the Estonia was unsinkable
  - (E) most victims were trapped inside the boat as they were in their cabins
  
2. It is clear from the passage that the survivors of the accident
  - (A) helped one another to overcome the tragedy that had affected them all
  - (B) were mostly young men but women, children and the elderly stood little chance
  - (C) helped save hundreds of lives
  - (D) are still suffering from severe post-traumatic stress disorder
  - (E) told the investigators nothing about the accident

23. Read the paragraph and answer the questions below.

Erosion of America's farmland by wind and water has been a problem since settlers first put the prairies and grasslands under the plow in the nineteenth century. By the 1930s, more than 282 million acres of farmland were damaged by erosion. After 40 years of conservation efforts, soil erosion has accelerated due to new demands placed on the land by heavy crop production. In the years ahead, soil erosion and the pollution problems it causes are likely to replace petroleum scarcity as the nation's most critical natural resource problem.

1. As we understand from the reading, today, soil erosion in America
  - (A) causes humans to place new demands on the land
  - (B) is worse than it was in the nineteenth century
  - (C) happens so slowly that it is hardly noticed
  - (D) is the most critical problem that the nation faces
  - (E) is worse in areas which have a lot of petroleum production
  
2. The author points out in the passage that erosion in America
  - (A) has damaged 282 million acres ever since settlers first put the prairies and grasslands under the plow
  - (B) has been so severe that it has forced people to abandon their settlements
  - (C) occurs only in areas with no vegetation
  - (D) can become a more serious problem in the future
  - (E) was on the decline before 1930s

24. Give the synonyms for **any two** of the following.

- (a) Scarcity
- (b) Proliferation
- (c) Persistence
- (d) Exhilarate

25. Write the antonyms for **any two** of the following:

- (a) entrance
- (b) borrow
- (c) sense
- (d) slim

26. (a) \_\_\_\_\_ is the adjective form of 'toxicity'

(b) What is the antonym of the word 'trifling'?

**(8 × 2 = 16 Marks)**

III. Answer **any six** of the following questions.

27. Fill in the blanks with the correct option.

- (a) Bina had asked you to \_\_\_\_\_ your assignment today. (Mail her/mail to her)
- (b) Ravi is a very \_\_\_\_\_ Man. (generous/general)
- (c) He \_\_\_\_\_ the cliff with ease. (mounted/mountain)
- (d) Sharika \_\_\_\_\_ the stairs. (ascended/assented)

28. Correct the error in the sections in italics in **four** of the following.

- (a) Krishna asked Joe *that he will* buy the vegetables on his way home.
- (b) They said that they had finished their exams *yesterday*.
- (c) The Stranger asked me *where is* the hospital?
- (d) All the members of the film club *was gathered* to commemorate the death of the veteran actor.
- (e) Smallpox *was been eradicated* from almost all countries today.



29. Correct the error in **four** of the following sentences.

- (a) I walked to the store and I bought milk.
- (b) I will eat fish for dinner and drank milk.
- (c) Anna and Mike is going skiing.
- (d) Shritha love reading books.
- (e) We enjoys reading horror movies.

30. Read the passage and answer the following questions.

While it's a noble thought to place the plastic bags in the recycling bin even week, studies have proven that there are very few recycling plants that actually recycle them. Most municipalities either burn them or send them off to the landfill after sorting. This is because it can be expensive to recycle this type of plastic. It doesn't melt down easily and is often not fit to be reused in its original form.

The premise of recycling these bags is nice. Yet funding for the upgrading of the recycling units just has not happened and thus less than 1% of all bags are sent to recycling plants worldwide. Most are left to become a pollution problem in one way or another.

There are always alternatives to plastic bags and the search for better and more alternatives continues. Paper bags are a possible option, but they also take their toll on the environment. The use of trees to increase the production of paper products will also have a negative environmental effect.

Reusable plastic bags are being introduced to regions that want to outlaw the plastic bags altogether. These are stronger and more durable and can be used for three to five trips to the store. Of course, the reusable cloth bag is fast becoming a favourite among the environmental supporters. While so far no bag is without its issues, these are the bags that are currently recommended for use to help protect environmental concerns.

Answer the following questions:

1. People object to the banning of plastic bags because they are:
  - (a) durable
  - (b) convenient
  - (c) easily disposable
  - (d) useful

2. The environmental balance of the waterways is being thrown off because:
  - (a) the amount of plastic bags is decreasing the water level
  - (b) the breaking rate of these bags is slow
  - (c) many species of sea mammals are dying
  - (d) there are 300 million plastic bags lying in Atlantic Ocean
3. What do most municipalities do to the plastic bags?
  - (a) Send them off to the landfill
  - (b) Recycle them
  - (c) Clean and send them for reuse
  - (d) Leave them undestroyed
4. The best option to replace plastic bags is:
  - (a) paper bags
  - (b) reusable plastic bags
  - (c) cloth bags
  - (d) all of the above

31. Read the passage and answer the following questions.

Once an organ donor's family gives its consent and the organs are matched to a recipient, medical professionals are faced with the onerous challenge of transporting organs while ensuring that the harvested organ reaches its destination in the shortest possible time. This is done in order to preserve the harvested organs and involves the police and especially the traffic police department.

The traditional method of transporting organs by road is referred to as a "green corridor". This process entails police escorting an ambulance, so as to move around traffic - usually a specific traffic lane is chosen and all signals on the route stay green to ensure it to reach its destination in the shortest possible time. A 'green corridor' is a route cleared and cordoned off by the traffic police to ensure the smooth and steady transportation of harvested organs, on most occasions, to those awaiting a life-saving transplant. Organs tend to have a very short preservation time, such as the heart which has to be harvested and transplanted within four hours or the lungs which can be preserved for only six hours once they are harvested.

The first green corridor in India was created by Chennai Traffic Police in September 2008 when they accomplished their task of enabling an ambulance to reach its destination within 11 minutes during peak hour traffic. That organ saved a nine-year-old girl whose life depended on the transplant.

Similarly, such green corridors have been created by traffic police of various cities such as Pune, Mumbai, Delhi NCR etc. Personnel are stationed at selected points to divert, control and clear the traffic giving way to the ambulance. Apart from this, a motorcade of police vehicles accompanies the ambulance ensuring that it does not face any problems. Delhi Traffic Police provided a green corridor from IGI Airport to Institute of Liver and Biliary Sciences in VasantKunj for transportation of a liver. The distance of 14 kms was covered in 11 minutes.

Experts point out the lack of a robust system to transport organs to super-speciality hospitals in least possible time. National Organ & Tissue Transplant Organisation (NOTTO), the country's apex organ donation agency, is now framing a proposal to airlift cadaver organs and will send a report to the Union Health Ministry. "Cadaver organs have a short life and so transplant should be done within a few golden hours." Director (NOTTO) expressed, "Therefore, we are preparing a proposal for airlifting organs at any given moment."

Most states do not have enough well-trained experts to retrieve or perform transplant procedures. Also, there is an acute shortage of advanced healthcare facilities to carry out a transplant. So, it is referred to other big centres in metropolitan cities. Organs retrieved from Aurangabad, Indore, Surat, Pune are sent to the Mumbai as these cities do not have super-speciality healthcare centres, informed officials.

"In India, about fifty thousand to one lakh patients are suffering from acute heart failure and need heart transplant at any point of time. In a private set-up, a heart transplant costs 15-20 lakhs, which is followed up by postoperative medication of about 30,000 per month lifelong."

Answer the following questions :

1. The first green corridor in India was created in:
  - (a) New Delhi
  - (b) Chennai
  - (c) Mumbai
  - (d) Pune
  
2. The organization which is framing a proposal to airlift cadaver organs is:
  - (a) Union Health Ministry
  - (b) Regional Organ and Tissue Transplant Organisation
  - (c) National Organ and Tissue Transplant Organisation
  - (d) State Organ and Tissue Transplant Organisation
  
3. The onerous task the author is talking about in para 1 is :
  - (a) finding organ donors
  - (b) finding doctors capable of performing transplants
  - (c) to carry the harvested organ in the shortest possible time
  - (d) to arrange the requisite facilities for the transplant
  
4. Most of the people do not go for the heart transplant as :
  - (a) it is very risky
  - (b) it is very painful
  - (c) it may cause death of the recipient
  - (d) the cost is prohibitive

32. Fill in the blanks with the suitable pronouns from those given in brackets.

(you, us, we, she, them, they, me)

(a) I like to draw. Rohan gave a drawing book to \_\_\_\_\_.

(b) The children were feeling cold so \_\_\_\_\_ wore coats.

(c) Tina has two dogs \_\_\_\_\_ loves \_\_\_\_\_ very much.

(d) We are going for a walk. Would \_\_\_\_\_ like To join \_\_\_\_\_?

33. Fill in the blanks with many or much.

(a) There isn't \_\_\_\_\_ rice in the house.

(b) I have packed \_\_\_\_\_ bottles of water.

(c) I didn't get \_\_\_\_\_ sleep last night.

(d) How \_\_\_\_\_ money do you have?

34. Fill in the blanks with suitable degree of adjectives of the words in brackets.

(a) The rose is the \_\_\_\_\_ of all flowers. (pretty).

(b) Sanju is a \_\_\_\_\_ boy. (clever)

(c) This test is \_\_\_\_\_ than the previous one. (easy)

(d) Sarita was the \_\_\_\_\_ in the race. (slow)

35. Fill in the blanks with the correct words from brackets.

(a) I have a brand \_\_\_\_\_ bicycle. (new/ knew)

(b) At the zoo, I saw a \_\_\_\_\_ as dark as my \_\_\_\_\_. (hare/hair)

(c) My father loves to swim in the \_\_\_\_\_. (see/sea)

(d) When I was in class \_\_\_\_\_, I \_\_\_\_\_ a prize. (won, one).

36. Fill in the blanks with collective nouns from those given in brackets.

(Flock, fleet, band, pack, team)

(a) There was a \_\_\_\_\_ of ships in the dockyard.

(b) The \_\_\_\_\_ of players played well in today's match.

(c) The crowd clapped for the \_\_\_\_\_ of musicians.

(d) The goats were chased by the \_\_\_\_\_ of wolves.

37. Fill in the blanks with the opposite gender of the words given in the brackets:

(a) The \_\_\_\_\_ gives us milk (Bull)

(b) My \_\_\_\_\_ lives in Kerala (nephew).

(c) The \_\_\_\_\_ (Prince) had a fine \_\_\_\_\_ (horse).

(d) The \_\_\_\_\_ (tiger) chased the \_\_\_\_\_ (deer).

38. Fill in the blanks with the correct tense of the verb given in brackets.

(a) Sunny's father \_\_\_\_\_ a new (buy) car.

(b) I will \_\_\_\_\_ (write) my notes neatly.

(c) The green grocer \_\_\_\_\_ (sell) fresh fruits and vegetables.

(d) My mother \_\_\_\_\_ (bake) every week.

**(6 × 4 = 24 Marks)**

IV. Answer any two of the following questions, choosing one from each group.

#### GROUP A

39. Read the following passage carefully and answer the questions below.

The sage of science, Einstein, was sitting in a depressive and pensive mood one evening. His eyes were brimming with tears. The pain was evident on his face. He peeped out of the window of his room. The sun had set a few minutes back. The sky was filled with a reddish glow. At this sunset, he felt that it was humanity that had sunk into devilish darkness and the reddish glow in the sky was the blood of humanity spilling all over the sky from earth. With tired steps, he walked back to his chair and settled down. It was the 9<sup>th</sup> of August 1945. Three days back, he had felt the same agony as if someone had torn him apart. He was deeply hurt and depressed when he heard on the radio that America had dropped an atom bomb on the Japanese city, Hiroshima. Today, within three days another bomb was dropped on another city, Nagasaki and lakhs of people had been killed.

He had heard that the blast released so much energy that it had paled all past destructions in comparison and death had played out a pitiable dance of destruction. The flames that broke out of the bomb were burning, melting and exploding buildings. Scared of the heat of the bomb, people had jumped into lakes and rivers, but the water was boiling, and the people too were burnt and killed. The animals in the water were already boiled to death. Animals, trees, herbs, fragrant flowering plants were all turned into ashes. The atomic energy destruction had just not stopped there. It had entered the atmosphere there and had spread radiation that would affect people for generations to come and would also ring about destructive irreversible biological changes in animals and plants.

As the news of the atomic attack reached Einstein, and he became aware of the glaring horror of the abuse of atomic energy, his distress and restlessness knew no bounds. He could not control himself and picked up his violin to turn his mind onto other things. While playing the violin, he tried to dissolve his distress in its sad notes but couldn't. He was burning on the embers of destruction; his heart was filled with an ocean of agony and tears just continued streaming uncontrollably out of his eyes, Night had fallen. His daughter came up and asked him to eat something as he had not taken anything for the last four days. His voice was restrained, and he said, "I don't feel like eating."

He could not sleep that night. Lying down, he was thinking how he had drawn the attention of the then American President Roosevelt towards the destructive powers of an atomic bomb. He had thought that this would be used to scare Hitler and put an end to the barbarism that Hitler was up to. However, Roosevelt kept him in the dark and made false promises. Eventually, he had abused Einstein's equation of  $E=MC^2$  that resulted in destructive experiments. His actions had made science and scientists as murderers. Einstein kept on thinking for a long time. Eventually, he slipped into sleep. When he woke up at dawn, there was a new dawn in him too. The atomic threat had transformed his heart.

The next day, he decided to disassociate himself from the scientific policy of the government and all governmental institutions. He decided to open educational institutions for children, adolescents, and youth — institutions where along with science, spirituality will be compulsorily taught.

To inaugurate this institution, he had invited two great philosophers, Bertrand Russell and Albert Schweitzer. Ten other great scientists who had won Nobel Prizes in different fields were also invited. They all saw a different Einstein, not a great scientist but a sage in him. The institution was opened by garlanding a photo of Mahatma Gandhi. While garlanding the Mahatma, he became emotional and said with a lump in his throat, "I bow down to the great man who fought for the independence of his country through non-violence. He could do so because he was a truthful man and true spiritualist."

Those who teach science should be taught spirituality too. Without harmony between science and spirituality, the destruction would continue unabated. A few years after this institution was built, a Japanese delegation came to meet him. Einstein broke down in the meeting and said, "You can give me any punishment and I will accept it. Anyway, I have decided to lead my life in penitence." The Japanese were moved by his sincerity and forgot their grief.

A. On the basis of your understanding of the passage, answer the following questions by choosing the most appropriate option.

(i) Besides two great philosophers how many other scientists were invited by Einstein to inaugurate the institution where spirituality would be compulsorily taught?

- (a) Five
- (b) Ten
- (c) Eight
- (d) Fifteen



- (ii) Which instrument did Einstein play when he was in grief?
- (a) Harmonium
  - (b) Guitar
  - (c) Violin
  - (d) Flute
- (iii) How did Einstein come to know that America had dropped an atom bomb on the Japanese city?
- (a) Through Television
  - (b) Through newspaper
  - (c) Through radio
  - (d) Through a telephonic message
- (iv) Which American President was told about the destructive power of an atomic bomb?
- (a) Kennedy
  - (b) Bill Clinton
  - (c) Lincoln
  - (d) Roosevelt
- (v) What did Einstein say to the Japanese delegation?
- (a) "You can give me any punishment and I will accept it."
  - (b) "I am not at fault."
  - (c) "What could I do?"
  - (d) "The President didn't agree with my advice."

**(5 × 1 = 5 Marks)**

B. Answer the following questions briefly.

- (i) What did Einstein do to overcome his distress after getting the news of the atomic attack?
- (ii) Which event in 1945, according to Einstein, turned science and scientists into murderers?
- (iii) What did Einstein do to show his displeasure over the atomic attack?
- (iv) Name the philosophers that Einstein invited to inaugurate the new institution.
- (v) Why did Einstein want harmony between science and spirituality while teaching in educational institutes?
- (vi) Find a word from the passage (para-1) which means 'thoughtful'.
- (vii) Find a word from the passage (para-2) which means 'sweet-smelling'.

**(7 × 1 = 7 Marks)**

C. Write a brief summary of the passage in your own words. **(1 × 3 = 3 Marks)**

40. Answer the following questions :

A. Fill in the blanks with the correct comparative/superlative form of the adjective.

1. Of the two projects, Arjun's is \_\_\_\_\_ (the best/better)
2. Vani is \_\_\_\_\_ all other girls in her class. (as tall as/taller than)
3. Of the five Pandava brothers, Bhima was \_\_\_\_\_ (the bigger an the more powerful/the biggest and the most powerful)
4. It was \_\_\_\_\_ evening by the time we returned. (later/late)
5. Are you feeling \_\_\_\_\_ than yesterday? (best or worst/better worse)

- B. Match the parts in column A with those in column B to form appropriate sentence.

A

B

- |                                       |                                     |
|---------------------------------------|-------------------------------------|
| 6. No other hero was                  | a. but mine is better.              |
| 7. We decided to go                   | b. as brave as Achilles.            |
| 8. Mahesh reads English better than   | c. uppermost on the pile            |
| 9. Your college is good               | d. all the other boys in his class. |
| 10. Your book is the one that is kept | e. further up the river.            |

- C. Spot the error in the sections in italics in the following sentences. Write the correct answers.

11. This is the *eldest building* on this campus.
12. The movie was not so *funny* as I heard it would be
13. This city is more *pollution* than I expected
14. Why don't you choose a *more better song* to sing than this one?
15. Would you like to have these *English delicious muffins* for breakfast?

(15 × 1 = 15 Marks)

41. Answer all the following questions.

- A. Complete the sentences using passive voice.

1. Happiness lighted up their faces.

Ans: Their faces were \_\_\_\_\_

2. My brother is decorating the house for the party tonight.

Ans: The house \_\_\_\_\_ decorated by my brother for the party tonight.

3. Everyone should help the differently abled to live an independent life.

Ans: \_\_\_\_\_ should be helped to live an independent life.

4. They are building a new bridge across the narrow part of the lake.

Ans: A new bridge is being \_\_\_\_\_

5. She invited me to her new home yesterday.

Ans: \_\_\_\_\_ was invited by \_\_\_\_\_ to her new home yesterday.

**(1 × 5 = 5 Marks)**

B. Complete the following passage by choosing the correct word/phrase from the options in brackets.

The Lok Sabha proceedings \_\_\_\_\_ (were disrupted/ disrupted) for the fourth consecutive day \_\_\_\_\_ (of/by) the opposition parties yesterday. The speaker said that a meeting of the Rules Committee \_\_\_\_\_ (would call/would be called) to look into the code of conduct for the MPs. Amid the disturbances, however, two important bill \_\_\_\_\_ (passed/were passed) by the lower house.

**(1 × 5 = 5 Marks)**

C. Complete the sentences using active voice.

A. Cricket is played in most countries today.

Ans: People \_\_\_\_\_ in most countries today.

B. Were you taught to sing when you were young?

Ans: Did \_\_\_\_\_ teach you \_\_\_\_\_ you were young?

C. Someone was seen running in the stadium at night by the police

Ans: The police saw \_\_\_\_\_ in the stadium \_\_\_\_\_

D. Will you be supported by your friends in this venture?

Ans: \_\_\_\_\_ support \_\_\_\_\_ in this venture?

E. The painting will be finished by tomorrow afternoon.

Ans: \_\_\_\_\_ will \_\_\_\_\_ tomorrow afternoon.

(1 × 5 = 5 Marks)

### GROUP B

42. Read the following passage carefully and answer the questions.

'NOW, what I want is, Facts. Teach these boys and girls nothing but Facts. Facts alone are wanted in life. Plant nothing else, and root out everything else. You can only form the minds of reasoning animals upon Facts: nothing else will ever be of any service to them, This is the principle on which I bring up my own children, and this is the principle on which I bring up these children. Stick to the facts, sir!'

The scene was a plain, bare, monotonous vault of a school-room, and the speaker's square 'forefinger emphasized his observations by underscoring every sentence with a line on the schoolmaster's sleeve. The emphasis was helped by the speaker's square wall of a forehead, which had his eyebrows for its base, while his eyes found commodious cellaring in two dark caves, overshadowed by the wall.

The emphasis was helped by the speaker's mouth, which was wide, thin, and hard set. The emphasis was helped by the speaker's voice, which was inflexible, dry, and dictatorial. The emphasis was helped by the speaker's hair, which bristled on the skirts of his bald head a plantation of firs to keep the wind from its shining surface, all covered with knobs, like the crust of a plum pie, as if the head had scarcely warehouse-room for the hard facts stored inside. The speaker's obstinate carriage, square coat, square legs, square shoulders, nay, his very neckcloth, trained to take him by the throat with an unaccommodating grasp, like a stubborn fact, as it was - all helped the emphasis.

'In this life, we want nothing but Facts, sir; nothing but Facts!'

The speaker, and the schoolmaster, and the third grown person present, all backed a little and swept with their eyes the inclined plane of little vessels then and there arranged in order, ready to have imperial gallons of facts poured into them until they were full to the brim.

Thomas Gradgrind, sir. A man of realities. A man of facts and calculations A man who proceeds upon the principle that two and two are four, and nothing over, and who is not to be talked into allowing for anything over. Thomas Gradgrind, sir-imperatively Thomas-Thomas Gradgrind. With a rule and a pair of scales, and the multiplication table always in his pocket, sir, ready to weigh and measure any parcel of human nature, and tell you exactly what it comes to. It is a mere question of figures, a case of simple arithmetic. You might hope to get some other nonsensical belief into the head of George Gradgrind, or Augustus Gradgrind, or John Gradgrind, or Joseph Gradgrind (all supposititious, non-existent persons), but into the head of Thomas Gradgrind-no, sir!

In such terms, MrGradgrind always mentally introduced himself, whether to his private circle of acquaintance or to the public in general. In such terms, no doubt, substituting the words 'boys and girls', for 'sir', Thomas Gradgrind now presented Thomas Gradgrind to the little pitchers before him, who were to be filled so full of facts.

Indeed, as he eagerly sparkled at them from the spacious cellar cellarage before mentioned, he seemed a kind of cannon loaded to the muzzle with facts, and prepared to blow them clean out of the regions of childhood at one discharge. He seemed a galvanising apparatus, too, charged with a grim mechanical substitute for the tender young imaginations that were to be stormed away.

'Girl number twenty,' said Mr. Gradgrind, squarely pointing with his square forefinger, 'I don't know that girl. Who is that girl?' SissyJupe, sir,' explained number twenty, blushing, standing up, and curtseying. 'Sissy is not a name,' said Mr. Gradgrind. 'Don't call yourself Sissy. Call yourself Cecilia.' 'It's father as he calls me Sissy, sir,' returned the young girl in a trembling voice, and with another curtsey. 'Then he has no business to do it.' said Mr. Gradgrind. 'Tell him he mustn't. Cecilia Jupe. Let me see. What is your father?'. 'He belongs to the horse-riding, if you please, sir. Mr. Gradgrind frowned, and waved off the objectionable calling with his hand. 'We don't want to know anything about that, here. You mustn't tell us about that, here. Your father breaks horses, doesn't he?' 'If you please, sir, when they can get any to break, they do break horses in the ring, sir' 'You mustn't tell us about the ring, here. Very well, then. Describe your father as a horse-breaker. He doctors sick horses, I dare say?' 'Oh yes, sir." Very well, then. He is a veterinary surgeon, a farrier, and a horse-breaker. Give me your definition of a horse.' (Sissy Jupe was thrown into the greatest alarm by this demand.)

'Girl number twenty unable to define a horse!' said Mr. Gradgrind, for the general benefit of all the little pitchers. 'Girl number twenty possessed of no facts, in reference to one of the commonest of animals! Some boys' definition of a horse. Bitzer, yours.' (Adapted from Charles Dicken's Hard Times)

A. On the basis of your understanding of the passage, answer the following questions by choosing the most appropriate option.

(i) How was the speaker's voice?

- (a) Inflexible
- (b) Dry
- (c) Dictatorial
- (d) All of these

(ii) Who has been called a man of realities?

- (a) Thomas Gradgrind
- (b) George Gradgrind
- (c) John Gradgrind
- (d) Joseph Gradgrind

(iii) What were the little 'pitchers' to be filled with?

- (a) Water
- (b) Wine
- (c) Facts
- (d) Figures

(iv) What was girl number twenty's real name?

- (a) Augustus
- (b) Sissy Jupe
- (c) Cecilia Jupe
- (d) BitzerJupe

(v) What was girl number twenty unable to do?

- (a) Define a horse
- (b) Tell about her family
- (c) Tell her name
- (d) Ride a horse

**(5 × 1 = 5 Marks)**

**B.** Answer the following questions briefly.

(i) What does Thomas Gradgrind believe in?

(ii) What is a child's mind compared to in this passage? Give examples.

(iii) Do you think Gradgrind's approach to education was right? Why/Why not?

(iv) What is symbolic about the names of the characters in the passage?

(v) What is Gradgrind's attitude towards children? Give examples.

(vi) Find a word from the passage (para-4) which means 'the very top edge of a container'.

(vii) Find a word from the passage (para-7) which means 'to use someone or something instead of a person or thing'.

**(7 × 1 = 7 Marks)**

**C.** Briefly summarize the passage.

**(1 × 3 = 3 Marks)**



43. Answer all the questions -

A. Spot the error in the sections in italics and choose the correct option.

- (1) All members of the Eco Club *was gathered* in the grounds to celebrate Earth Day.
- (a) did gathered
  - (b) did gather
  - (c) were gathered
  - (d) no error
- (2) Most of the bridges that were damaged in the floods *has been repaired*.
- (a) have been repaired
  - (b) is being repaired
  - (c) to be repaired
  - (d) no error
- (3) We *are being taught* Biology by Miss Shaina this year.
- (a) is taught
  - (b) are taught
  - (c) have taught
  - (d) no error
- (4) Smallpox *was been eradicated* from almost all countries today.
- (a) is been eradicated
  - (b) has been eradicated
  - (c) has being eradicated
  - (d) no error

(5) After the floods, houses are been built on stilts in waterlogged areas.

- (a) have been built
- (b) were being
- (c) are being built
- (d) no error

B. Spot the error in the underlined sections of the following sentences and circle the appropriate letter. If there is no error, the answer is d.

(6) Plans are been made by the film club to make a short film No error  
a b c d

(7) Let trees be planted all over this hill No error  
a b c d

(8) The court has been agreed to consider his petition No error  
a b c d

(9) Most accidents are caused from rash driving. No error  
a b c d

(10) Did you not angry at their refusal to obey the rules? No error  
a b c d

C. Rewrite the following sentences in direct speech with appropriate punctuation marks.

(11) Sonia said that she was tired, and that she wished to go to sleep.

Ans: 'I am tired', Sonia said, 'I \_\_\_\_\_'

(12) The teacher told the students to be quiet.

Ans: The teacher said, '\_\_\_\_\_'

(13) Maya asked Pooja to go with her to meet the Principal.

Ans: 'Can you, \_\_\_\_\_ Pooja?' Maya asked.

(14) Vijay asked Paul how he had fared in the examination the week before.

Ans: 'Vijay said, \_\_\_\_\_ last week?'

(15) The doctor greeted the patient and asked him how he was that day.

Ans: \_\_\_\_\_! How \_\_\_\_\_? the doctor said.

**(15 × 1 = 15 Marks)**

**44. Answer all the Questions**

**A. Choose the most suitable verb form from the options given.**

(1) I usually \_\_\_\_\_ to college by bus, but today I \_\_\_\_\_ with my friend, as her father said he \_\_\_\_\_ us in his car.

(a) will go, am going, takes

(b) went, go, might take

(c) go, am going, will take

(d) none of these

(2) Mr. Pai's family \_\_\_\_\_ (live) here for the past twenty years.

(a) is living

(b) has been living

(c) will live

(d) Both (a) and (b)

(3) \_\_\_\_\_ You \_\_\_\_\_ (buy) the textbook I \_\_\_\_\_ (want) ?  
Lekha asked Anne.

(a) did, buy, wanted

(b) will, buy, will want

(c) will, buy, want

(d) Both (a) and (c)

(4) \_\_\_\_\_ You \_\_\_\_\_ (wait) for long? I was \_\_\_\_\_ (catch up)  
in a traffic jam.

(a) did, wait, catching up

(b) have, been waiting, catches up

(c) have been, waiting, caught up

(d) none of the above

(5) When \_\_\_\_\_ you \_\_\_\_\_ (reach) Chennai tomorrow? Ravi  
\_\_\_\_\_ (leave) by then.

(a) will, reach, will be leaving

(b) will, reach, will have left

(c) do, reach, will leave

(d) none of the above

**(5 × 1 = 5 Marks)**

B. Complete the passage with suitable verb forms.

Passenger: Excuse me, Sir \_\_\_\_\_ me when the train to  
Trivandrum. will \_\_\_\_\_?

Railway Clerk: The Parasuram Express \_\_\_\_\_ in half an hour. Do you  
\_\_\_\_\_ a ticket?

Passenger: Yes, please, I \_\_\_\_\_ two tickets to Trivandrum.

Railway Clerk: Do you \_\_\_\_\_ sleeper class or general compartment

Passenger: I \_\_\_\_\_ a sleeper, please.

Railway Clerk: Here \_\_\_\_\_ your tickets. That \_\_\_\_\_ hundred and fifty-two rupees.

Passenger: I only \_\_\_\_\_ a five-hundred-rupee note.

Railway Clerk: Here \_\_\_\_\_ the balance. Thank you.

Passaneger: Thank you.

**(1 × 5 = 5 Marks)**

C. Match the parts of the sentences in column A to the parts in column B.

- | A                            | B   |
|------------------------------|---|
| 1. Tommy told Alan           | (a) the party had already begun               |
| 2. James lives in Kottayam   | (b) if Rema was applying for a scholarship    |
| 3. Mr. Anil, the chief guest | (c) what he thought of him.                   |
| 4. By the time Asha arrived  | (d) and he commutes to Kochi every day        |
| 5. Fatima wanted to know     | (e) will deliver the lecture tomorrow morning |

**(5 × 1 = 5 Marks)**