

Instructions:

- 1) All questions are **compulsory**.
 - 2) Mixing of sub questions are not allowed.
 - 3) Write in clear, legible, writings.
-

Q I) Attempt any two : - (10)

- A) Define Big-O notation and explain how to calculate it for an algorithm.
- B) Explain with the help of a suitable example infix-to-postfix conversion.
- C) What are the different types of complexities in algorithm analysis?
- D) What is the difference between a greedy algorithm and dynamic programming?
Provide an examples where each is applicable.

Q II) Attempt any two : - (10)

- A) Explain the brute force method for string pattern matching.
- B) What is the difference between a depth-first search (DFS) and a breadth-first search (BFS)?
Discuss their applications.
- C) What is backtracking, and how is it used in problem-solving?
- D) What is a circular linked list, and how does it differ from a regular singly linked list?

Q III) Attempt any two : - (10)

- A) What is stack ?. Present a suitable example and explain it with the help of different operations used in it.
- B) Describe the fundamental attributes that every algorithm should possess. Why are these important?
- C) Explain the concept of a queue. What are the various operations performed on a queue, and how do they work?
- D) What are the different types of sorting . Explain in brief with suitable example.

INTRODUCTION TO OOP USING C++Instructions:

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-

Q1) Attempt any two: (10)

- A) Explain the do-while loop in C++ with examples.
- B) Explain the increment operators in C++.
- C) Write a program in C++ to print prime numbers between 2 to 100 in the reverse order (2 should be the last one to be displayed).
- D) Write a program in C++ to display all numbers between 5000 and 10000 which are divisible by both 3 and 7.

Q2) Attempt any two: (10)

- A) Explain overriding in C++ with examples.
- B) Explain pure virtual functions in C++ with example.
- C) Create a class to represent a complex number. Define appropriate constructor. Overload the operators for adding and subtracting two complex numbers. Create objects in the main and demonstrate the operation.
- D) Write a program in C++ to implement a base class Person. Derive classes Student and Instructor from Person. A person has a name and an age. A student has a major subject, and an instructor has a salary. Write the class definitions, the constructors, and the member functions 'display' for all classes.

Q3) Attempt any two: (10)

- A) Explain relational operators in C++.
- B) Write a note on constructors in C++.
- C) Explain the various types of inheritance.
- D) Write a program in C++ to read the content of a file and display it on the monitor.

Max Time: 1 hrs

FY Semester II

Max Marks: 30

Descriptive Statistics

Instructions:

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Q1. Attempt any two:

(15)

A. Find the mean, median, mode, range and coefficient of range of the given data:

- i. 1, 2, 2, 3, 4, 5, 6, 7, 7, 8, 9
- ii. 100, 200, 300, 400, 500, 600, 700, 800, 900
- iii. 1, 1, 1, 2, 2, 3, 4, 4, 5, 6, 6

B. Find the mean, median and mode of the given data:

C.I	20-30	30-40	40-50	50-60	60-70	70-80
frequency	9	14	10	10	12	5

- C. i. The difference between the highest and lowest value in a group of observation is 7. The coefficient of range is 0.1 find the highest and lowest value in a group.
- ii. The sum of highest and lowest values in a group of observation is 40. the coefficient of range is 0.2 find the highest and lowest values in the group.

D. Find S.D and C.V for grouped data.

C.I	20-40	40-60	60-80	80-100	100-110	110-120
frequency	11	15	19	25	20	10

Q2. Attempt any two:

(15)

- A. i. Write a short note on linear correlation. State different types of correlation.
- ii. Find coefficient of correlation for the following data.

x	-3	1	2	7	-1	4
y	-7	2	1	5	-3	5

B. Find the Rank correlation coefficient of the following data

x	85	85	70	60	60	73	68	65
y	85	92	81	63	63	89	85	63

C. Find two regressions x on y and y on x for the following data.

x	11	7	9	5	8	6	10	59
y	16	14	12	11	15	14	17	99

D. i. Find mean of x and y and coefficient of correlation r of the given regression equation.

Regression equation y on x $3x-2y+4=0$ & Regression equation x on y $4x-y-23=0$.

ii. Find two regression equation and also find

Find x when $y=35$ and y when $x = 40$

$$\bar{x} = 54, \bar{y} = 40, \sigma_x = 5.3, \sigma_y = 2.8, r = 0.85$$

Elementary Mathematical Techniques for Economics

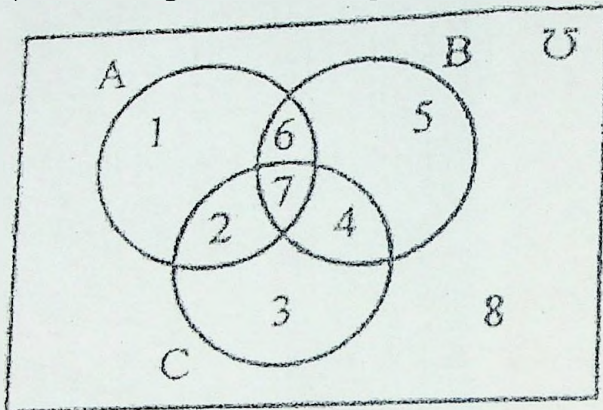
Instructions:

- 1) All questions are compulsory.
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Q1. Attempt any two:

(15)

- A. i) Write The definition of set and types of Sets.
 ii) From the given Venn diagram, prove the following



- i. $A \cup B \cap C = (A \cup B) \cap (A \cup C)$
- ii. $A - B \cup C = (A - B) \cap (A - C)$
- iii. $A \cap B - A \cap C = A \cap B - C$

- B. i) In a survey of 100 people 70 people like chocolate, 60 people like vanilla, 50 people like both chocolate and vanilla.

How many people like only chocolate? How many people like only vanilla?
 How many people like neither?

- ii) Let the sets A, B, and C be defined as follows:

$A = \{1, 2, 3, 4, 5\}$, $B = \{3, 4, 5, 6, 7\}$, $C = \{5, 6, 7, 8, 9\}$ Perform the following operations:

1. Find the **union** of A and B
2. Find the **intersection** of B and C
3. Find the **difference** A-B
4. Find the **union** of the three sets A, B, and C ($A \cup B \cup C$).
5. Find the **intersection** of all three sets A, B, and C ($A \cap B \cap C$).
6. Find $(A \cup B) - C$

- C. i) Let Set X be the set of multiples of 3 between 1 and 30.

Let Set Y be the set of multiples of 5 between 1 and 30.

Represent these two sets in a Venn diagram, and find the union of X and Y ($X \cup Y$). What is the number of elements in this union?

ii) A survey was conducted among 100 students in a class about their participation in different clubs
 60 students are in the **Music Club**, 45 students are in the **Drama Club**, 30 students are in both the **Music Club** and the **Drama Club**

1. How many students are in **only** the Music Club?
2. How many students are in **only** the Drama Club?
3. How many students are in neither the Music Club nor the Drama Club?

Q2. Attempt any two:

(15)

A. i) write the different types of matrices with example.

ii) solve the matrix multiplication

$$A = \begin{bmatrix} 2 & 3 & -2 \\ 5 & -2 & 0 \\ 3 & 4 & -1 \end{bmatrix} \text{ and } B = \begin{bmatrix} 1 & 2 \\ 3 & -4 \\ 0 & 2 \end{bmatrix}$$

B. i) if $A = \begin{bmatrix} 5 & 2 \\ -7 & -3 \end{bmatrix}$, $B = \begin{bmatrix} 3 & -7 & -8 \\ 2 & 2 & 9 \end{bmatrix}$ and $C = \begin{bmatrix} 7 \\ -3 \\ 5 \end{bmatrix}$ then $(ABC)^t = C^t B^t A^t$

ii) If $A = \begin{bmatrix} 2 & 1 \\ 3 & 2 \end{bmatrix}$, $B = \begin{bmatrix} 4 & 2 \\ 3 & 1 \end{bmatrix}$ and $C = \begin{bmatrix} 3 & 4 & 2 \\ 7 & 6 & 1 \end{bmatrix}$

find $A + B$, $2A - 3B$, AB , AC and BC .

C. i) find the Adjoint of the given matrix $B = \begin{bmatrix} 5 & 6 \\ -2 & -4 \end{bmatrix}$

ii) Solve the given set of equations using matrix method :

$$x + 3y + 3z = 5 \quad , \quad x + 4y + 3z = 6 \quad , \quad x + 3y + 4z = 2$$

****ALL THE BEST****

Max Time: 1.00 hrs

FYBsc CS/IT Semester II

Max Marks: 30

Content Writing

Instructions:

- 1) All questions are compulsory.
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-

Q1) Short notes Attempt any two

(10)

- A) Write a short note on: Content Write for
 - a) Emails
 - b) Blogs
- B) Write a short note on: Content Write for
 - a) Social Media Posts
 - b) Headlines
- C) What is the role of content writing in digital marketing?
- D) Write a short note on Role of content writing in various sectors?

Q2) Writing and editing task Attempt any two

(10)

- A) How to Write an email? Explain in brief with examples.
- B) How to Write a Headline? Explain in brief with examples.
- C) Write a brief note on any 5 different types of social media.
- D) Why is editing important in content writing?

Q3) Answer in 2-3 lines Attempt any 5

(10)

- A) What is the Role of a content writer in the corporate world?
- B) What are the different job portfolios in content writing?
- C) What is the role of content writing in the age of the internet ?
- D) Write a brief note on any one social media app?
- E) Write a brief note on content writing?
- F) Write a brief on research and preparation?
- G) What is brainstorming? State its steps?

Subject Code: FYCS210

Max Time: 1 hr

FYIT/CS Semester II

Max Marks: 30

Fundamentals of People's Skills

Instructions:

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-

Q1) Attempt any two:

(15)

- A) Who is an entrepreneur? Write the traits and qualities of an entrepreneur.
- B) How can ethical decision-making impact the long-term success of a business or individual?
- C) What is a team? What are the advantages of being a good listener as a team member and a team leader?
- D) Write the essentials of writing a good Resume.

Q2) Attempt any two:

(15)

- A) Write about the common mistakes people make while preparing a good resume.
- B) Why is following etiquette important in both personal and professional life?
- C) What is a pitch deck presentation? Write points to include in the pitch deck presentation
- D) What are the key differences between social and professional etiquette, and why is it important to adjust one's behaviour according to the setting?

प्रथम वर्ष/सेमिस्टर - II / AEC- हिंदी भाषा : कौशल के आधार
(Language Skill in Hindi)

समय : 01 घंटे

अंक : 30

सूचना: 1) प्रश्न क्रमांक 1 से 3 में से किन्हीं 2 प्रश्नों के उत्तर लिखिए

2) दायीं ओर के अंक गुण दर्शाते हैं।

प्रश्न 1. निम्नलिखित प्रश्नों में से कोई भी तीन प्रश्नों के उत्तर लिखिए 15

- भाषा कौशल का अर्थ बताकर उनके प्रकारों पर चर्चा कीजिए ?
- भाषा कौशल का अर्थ समझाकर लेखन कौशल की विशेषताएँ लिखिए ?
- भाषण कौशल का अर्थ समझाकर उनके तत्वों पर प्रकाश डालिये ?
- श्रवण कौशल की विशेषता बताकर उनके उपायों पर चर्चा कीजिए ?

प्रश्न 2. निम्नलिखित प्रश्नों में से कोई भी तीन प्रश्नों के उत्तर लिखिए 15

- वाचन कौशल का अर्थ बताकर उसकी विशेषताओं को स्पष्ट कीजिए ?
- वर्तमान समय में भाषा कौशलों की उपयोगिता बताकर श्रवण कौशल की विशेषता बताइए ?
- शिक्षा के क्षेत्र में भाषण कौशल और लेखन कौशल का महत्व बताकर उनकी विशेषताएँ लिखिए ?
- पढ़ने के कौशल का अर्थ समझाकर उसके महत्व पर प्रकाश डालिए ?

प्रश्न 3. निम्नलिखित प्रश्नों में से कोई भी तीन प्रश्नों के उत्तर लिखिए 15

- भाषा कौशल का अर्थ बताकर भाषण कौशल की विशेषता लिखिए ?
- श्रवण कौशल का महत्व और उसकी उपयोगिता वर्णन कीजिए ?
- वाचन कौशल का अर्थ बताकर उसकी विशेषताओं को स्पष्ट कीजिए ?
- शिक्षा के क्षेत्र में वाचन और श्रवण कौशल का महत्व बताकर उनकी विशेषता लिखिए ?

FY Sem-II AEC URDU Set-II

Urdu Communication Skill - I

Marks: 30

Time: 1 Hr

(۱۰ نمبرات)

سوال نمبر ۱۔ لہجہ کسے کہتے ہیں مثال دے کر سمجھائیے۔

یا

تلفظ اور گفتگو پر اپنے خیالات کا اظہار کیجیے۔

(۱۰ نمبرات)

سوال نمبر ۲۔ فعل، فاعل اور مفعول کی تعریف لکھیے اور مثال بھی دیجیے۔

یا

صفت کسے کہتے ہیں؟ صفت کی اقسام کو مثال دے کر سمجھائیے۔

(۱۰ نمبرات)

سوال نمبر ۳۔ درج ذیل سوالوں میں سے کسی دو کے جواب دیجیے۔

(الف) زبانی مواصلات کی اقسام کا جائزہ لیجیے۔

(ب) غیر زبانی مواصلات (نان ور بل کمیونیکیشن) کیا ہے؟

(ج) زبانی اور غیر زبانی مواصلات سے آپ کیا سمجھتے ہیں؟

☆☆☆

N.B:

1. Attempt all questions.
2. All questions carry equal marks.
3. Figures to the right indicate full marks.

1. Fill in the blanks with the appropriate answer. (06Marks)

- I. _____ is not a performing art. (Painting/Dance/Music/Theatre)
- II. _____ exercise helps in voice modulation. (Lip Trills/Push - ups/Stretching/Jumping)
- III. _____ is an essential skill for a career in fine arts. (Programming/Financial analysis/Creativity/Legal drafting)
- IV. The folk dance of Madhubani is predominantly associated with _____ state in India. (Gujarat/Maharashtra/Bihar/Rajasthan)
- V. _____ emotion is most commonly explored in dramatic scenes. (Fear/Surprise/happiness/All of them)
- VI. _____ is a key feature of Indian tribal art. (Use of gold leaf/depiction of daily life and nature/Large-scale sculptures/Complex geometric patterns)

2. Attempt any two from the following questions. (06Marks)

- A. Discuss briefly the contribution of performing arts to Indian culture.
- B. How did performing arts in India grow historically?
- C. What are the basic elements of performing arts?
- D. Write a note on any performing art in India.

3. Attempt any two from the following questions. (06Marks)

- A. "Character development and analysis are integral to the performing arts". Explain in brief.
- B. "Emotional exploration and expression in performing arts involve using the medium of performance". Discuss few of them.
- C. Mention some career options in the performing arts in India.
- D. What are the key aspects of improvisation skills in performing arts?

4. Attempt any two from the following questions. (06Marks)

- A. Write a note on the art and craft of Indus Valley civilisation.
- B. What is the contribution of tribal art forms to Indian culture?
- C. Comment on chronicles of Indian artistry.
- D. Discuss the challenges involved in preservation of ancient Indian art forms.

Time: 1 hrs
Subject: Extension Work
Note:

Total marks: 30
Semester II Examinations

1. Attempt all questions
 2. Figures to the right indicate maximum marks.
-

Q1. Rewrite the following statement by choosing the correct alternative: (06 Marks)

1. Dr. Sunita Williams has set records for the most _____ by a woman.
 - a. Flights
 - b. Missions
 - c. Spacewalks
 - d. Landings
2. Kiran Bedi was the first woman to join the Indian _____ Services.
 - a. Civil
 - b. Police
 - c. Administrative
 - d. Foreign
3. What is the primary definition of child labour?
 - a. Employment of children in safe and educational environments.
 - b. Employment that deprives children of their childhood and is harmful to their development.
 - c. Part-time jobs for teenagers during summers.
 - d. Apprenticeships for young adults.
4. According to the Consumer Protection Act 2019, who can be liable for misleading advertisements?
 - a. Only advertisers
 - b. Only endorsers
 - c. Both advertisers and endorsers
 - d. Neither advertisers nor endorsers
5. How do old age homes enhance safety for residents?
 - a. 24/7 monitoring and staff assistance
 - b. Allowing residents to live alone
 - c. Providing minimal medical support
 - d. Reducing medical access
6. The Equal Remuneration Act of 1976 ensures that women and men receive _____ for the same work, promoting gender equality at workplace.
 - a. Equal pay
 - b. Flexibility
 - c. Job security
 - d. Paid leaves

Q2. Write short notes on any TWO of the following: (06 Marks)

1. Different types of old age homes.
2. Two legal rights granted to women in India to promote gender equality.
3. Laws and regulations addressing child labour in India.
4. Any two women achievers' contribution towards the nation.

Max Time: 1 hr

Semester II

Max Marks: 30

NSS (National Service Scheme)Instructions:

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-

Q1) Rewrite the following by choosing the correct options given below: (6)

1. Which characteristic of a leader involves maintaining a positive attitude and motivating others to achieve goals?
 - A. Optimism
 - B. Arrogance
 - C. Negativity
 - D. Indifference

2. Decision-making ability in a leader is important because it helps to:
 - A. Delay important decisions
 - B. Make choices based on emotion
 - C. Make informed decisions that guide the team or organization
 - D. Avoid responsibility

3. World Cancer Day is celebrated on :
 - A. 24th March
 - B. 4th February
 - C. 1st May
 - D. 7th April

4. International Day of Non-violence is celebrated on :
 - A. 2nd October
 - B. 5th June
 - C. 1st December
 - D. 4th July

5. World Day of International Justice is celebrated on :
 - A. 8th September
 - B. 25th November
 - C. 21st December
 - D. 17th July

6. Integrity in leadership means:
 - A. Being honest and adhering to ethical principles
 - B. Focusing solely on personal goals
 - C. Avoiding accountability
 - D. Appearing successful despite unethical actions

Q2) Short Notes:- (Any two):

(6)

1. Shramadan and its scope
2. Rainwater Harvesting as part of Shramadan
3. Sorting Waste in Cleaning Activities
4. Awareness Rallies (purpose, activities and impact)

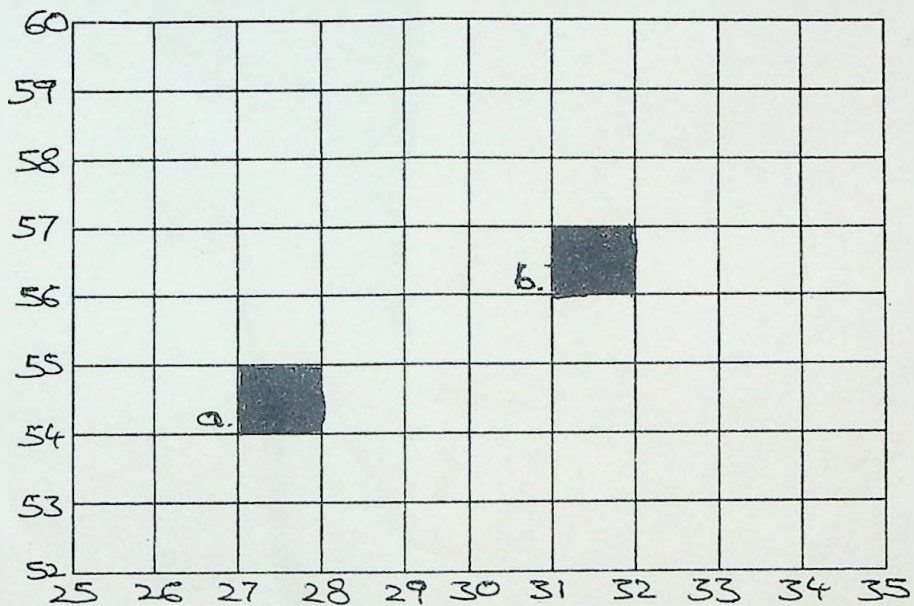
Q3) Answer the following questions:- (Any Three)

(18)

1. Why is the activity of Tree plantation important? What are the steps involved in Tree Plantation activity? Explain
2. What is the purpose and what are the key goals of Personality development programmes?
3. Explain the steps involved in organizing Blood donation camps? Explain
4. What is the purpose of organizing health camps? Give the guidelines of conducting an effective health camp
5. Explain the following in relation to conducting a Rally:-
 - a. Objectives and Theme of a Rally
 - b. Planning a Rally

- NB : 1. Attempt any Three Questions
2. All questions carry equal marks.
3. Figures to the right indicate maximum marks.

1. Explain the different Cardinal points and all the major and minor directions in map reading ? [10]
2. Explain the types of North ? Give a four figure grid reference of the following diagram. [10]



3. What are the different types of leadership ? [10]
4. How will you use the training given in NCC in your real life ? [10]