(2024 Batch Onwards)

AH4CUDC204 Reg. No. : | | | | | | | | |

St Aloysius (Deemed To Be University)

Mangaluru

School of Arts and Humanities

(UG Programme)

B.Sc. - SEMESTER III – Degree Examination

October/November - 2025

ECONOMICS – III(a)

STATISTICS FOR ECONOMICS

Time: 2½ Hours. **Max. Marks: 60**

Note: Graph sheet will be provided.

SECTION - A

Answer any FIVE of the following: **(5×2=10)**

1. The marks scored by 5 students in an examination are 25, 40, 70, 100 find the range.
2. What do you mean by Arithmetic mean?
3. What are moving averages?
4. What is secular trend?
5. Define harmonic mean.
6. If the regression coefficients are 0.4 and 0.8, find the correlation of coefficient.

SECTION - B

Answer any SIX of the following: **(6×5=30)**

7. The following table gives the weekly wages in rupees in a certain commercial organisation. Draw histogram from the following.

Weekly Wages(Rs)	30-32	32-34	34-36	36-38	38-40	40-42	42-44	44-46	46-48	48-50
Frequency	2	9	25	30	49	62	39	20	99	3

8. Calculate the mean deviation from median and its coefficient from the following data.

Class	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	5	8	12	15	20	14	12	5

9. Define Index Number. Explain the steps in the construction of an Index Number.
10. Given Mean of $\bar{X}$=36, Mean of $\bar{Y}$=85, Correlation=-0.66, S.D. of X=11, S.D of Y=8
    i. Find two regression equations of X on Y and Y on X.
    ii. Estimate the value of X when Y =75.

Contd...2

11. Construct 5 yearly moving averages of the number of students studying in a college shown below:

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Profit	110	104	98	105	109	120	115	110	114	122	130

12. Calculate Karl-Pearson's coefficient of correlation for the following data.

X	10	20	30	40	50	60	70	80
Y	40	30	40	10	20	40	50	60

13. Compute Fisher's Ideal Index Number from the following data and verify the time reversal test.

Item	Base year		Current year	
	Price	Quantity	Price	Quantity
A	2	8	4	6
B	5	10	6	5
C	4	14	5	10
D	2	19	2	13

14. Find Spearman's coefficient of rank correlation from the following data.

R1	8	4	7	6	2	1	5	3
R2	6	3	8	5	1	2	7	4

SECTION – C

Answer any <u>TWO</u> of the following: **(2×10=20)**

ಈ ಕೆಳಗಿನವುಗಳಲ್ಲಿ ಯಾವುದಾದರೂ <u>ಎರಡು</u> ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ:

15. Calculate the coefficient of correlation between marks in Statistics and in Economics of 100 students who appeared in the B.Com examination.

Marks in Economics	Marks in Statistics				
	0-10	10-20	20-30	30-40	40-50
0-10	6	33			
10-20	3	16	10		
20-30		10	15	7	
30-40			7	10	4
40-50				4	5

16. Compute Arithmetic Mean and Mode from the following data.

C -I	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80
F	18	16	15	12	10	5	2	1

17. Following are the prices of commodities in 2 cities. Find from the following data, Compute standard deviation, variance and coefficient of variation and find which city has more stable price?

City 'A'	20	22	19	23	16	18	16	21	24	22
City 'B'	18	20	18	12	15	20	15	22	22	20

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(2024 batch onwards)

AH4GUDC210/AH4HUDC211 Reg. No: | | | | | | | | |

St Aloysius (Deemed to be University)

Mangaluru

School of Arts and Humanities

(UG Programme)

B.A./B.Sc. - Semester III – Degree Examination

October/November - 2025

PSYCHOLOGY - III

DEVELOPMENT THROUGH LIFE - I

Time: 2½ Hours **Max. Marks: 60**

PART - A

I. Answer any FIVE questions in 2-3 sentences each. **(5x2=10)**

1. Mention the periods of development.
2. What are sex cells?
3. What is gender stereotyping?
4. What was the impact of Breakfast program on children's school achievement?
5. How does the concrete operational child think?
6. Why do we use research designs?

PART - B

Answer any SIX of the following: **(6x5=30)**

7. How do you think the insights we get by studying children enhances our understanding of human development?
8. How do couples benefit from genetic counselling as a prenatal Diagnostic technique?
9. Write a note on SIDS.
10. Discuss how Umbilical cord blood can save an individual's life.
11. New born reflexes are in built mechanisms. Discuss.
12. Peer group influences development during middle childhood period. Discuss.
13. Developmental issues are debatable. Justify.
14. Discuss the impact of parenting, socioeconomic status, teacher expectations and educational system on children's school achievement using Bronfenbrenner's theory.

PART - C

Answer any TWO of the following: **(2x10=20)**

15. Compare the theories of Piaget and Vygotsky.
16. Assess the impact of environmental agents on the development of the foetus.
17. Explain development of children in the social context.

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AH4GUVE281

(2024 Batch onwards)

Reg. No. | | | | | | | | |

ST. ALOYSIUS (DEEMED TO BE UNIVERSITY)
Mangaluru
SCHOOL OF ARTS AND HUMANITIES
(UG Programme)
B.A./B.Sc./B.C.A. – Semester III - Degree Examination
October / November - 2025
FOUNDATION COURSE IN GENDER EQUITY AND VALUE EDUCATION

Time: 2 Hrs. **Max Marks: 50**

I. Answer any FIVE of the following questions in just one sentence each. **(5×1=5)**
ಕೆಳಗಿನ ಯಾವುದಾದರೂ ಐದು ಪ್ರಶ್ನೆಗಳನ್ನು ಉತ್ತರಿಸಿ.

1. What is Gender Equity?
   ಲಿಂಗ ಸಮಾನತೆ ಎಂದರೇನು?
2. What is POSH?
   POSH ಎಂದರೇನು?
3. When was the Domestic violence act passed?
   ದೇಶೀಯ ಹಿಂಸಾಚಾರ ಕಾಯ್ದೆ ಯಾವಾಗ ಚಾರಿಗೆ ಬಂದಿತು?
4. What is sex ratio?
   ಲಿಂಗ ಅನುಪಾತ ಎಂದರೇನು?
5. What are the reasons for female feticide or infanticide in India ?
   ಭಾರತದಲ್ಲಿ ಹೆಣ್ಣು ಭ್ರೂಣಹತ್ಯೆ ಅಥವಾ ಶಿಶುಹತ್ಯೆಗೆ ಕಾರಣಗಳೇನು?
6. Mention two objectives of National commission for women.
   ರಾಷ್ಟ್ರೀಯ ಮಹಿಳಾ ಆಯೋಗದ ಎರಡು ಉದ್ದೇಶಗಳನ್ನು ತಿಳಿಸಿ.
7. Expand PNDT.
   PNDT ಅನ್ನು ವಿಸ್ತರಿಸಿ.

II. Answer any FIVE of the following questions in about two sentences each. **(5×2=10)**
ಕೆಳಗಿನ ಯಾವುದಾದರೂ ಐದು ಪ್ರಶ್ನೆಗಳನ್ನು ಉತ್ತರಿಸಿ.

8. Give examples for femininity and masculinity.
   ಸ್ತ್ರೀತ್ವ ಮತ್ತು ಪುರುಷತ್ವಕ್ಕೆ ಉದಾಹರಣೆಗಳನ್ನು ನೀಡಿ.
9. Difference between sex and gender
   ಲಿಂಗ ಮತ್ತು ಲಿಂಗದ ನಡುವಿನ ವ್ಯತ್ಯಾಸ
10. Name the social reformers who worked to empower women during pre-independent period.
    ಸ್ವಾತಂತ್ರ್ಯ ಪೂರ್ವದಲ್ಲಿ ಮಹಿಳೆಯರ ಸಬಲೀಕರಣಕ್ಕಾಗಿ ಶ್ರಮಿಸಿದ ಸಮಾಜ ಸುಧಾರಕರನ್ನು ಹೆಸರಿಸಿ.
11. What is honor killing?
    ಗೌರವ ಹತ್ಯೆ ಎಂದರೇನು?
12. Which is the law that prevents the detection of sex of the fetus during pregnancy?
    ಗರ್ಭಾವಸ್ಥೆಯಲ್ಲಿ ಭ್ರೂಣದ ಲಿಂಗ ಪತ್ತೆ ಮಾಡುವುದನ್ನು ತಡೆಯುವ ಕಾನೂನು ಯಾವುದು?
13. What is maternal mortality?
    ತಾಯಂದಿರ ಮರಣ ಪ್ರಮಾಣ ಎಂದರೇನು?
14. What are the offences related to marriage.
    ಮದುವೆಗೆ ಸಂಬಂಧಿಸಿದ ಅಪರಾಧಗಳು ಯಾವುವು?

Contd...2

III. Answer any <u>TWO</u> of the following questions in 20 lines each. (2x10=20)

ಕೆಳಗಿನ ಯಾವುದಾದರೂ <u>ಎರಡು</u> ಪ್ರಶ್ನೆಗಳನ್ನು ಉತ್ತರಿಸಿ.

15. Describe the characteristics of patriarchy and matriarchy

ಪಿತೃಪ್ರಧಾನತೆ ಮತ್ತು ಮಾತೃಪ್ರಧಾನತೆಯ ಗುಣಲಕ್ಷಣಗಳನ್ನು ವಿವರಿಸಿ.

16. Write a note on laws and legislations protecting women and children.

ಮಹಿಳೆಯರು ಮತ್ತು ಮಕ್ಕಳನ್ನು ರಕ್ಷಿಸುವ ಕಾನೂನುಗಳು ಮತ್ತು ಶಾಸನಗಳ ಬಗ್ಗೆ ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.

17. What are the factors affecting maternal mortality?

ತಾಯಂದಿರ ಮರಣದ ಮೇಲೆ ಪರಿಣಾಮ ಬೀರುವ ಅಂಶಗಳು ಯಾವುವು?

18. What measures would you suggest to bring about a gender equal society?

ಲಿಂಗ ಸಮಾನ ಸಮಾಜವನ್ನು ತರಲು ನೀವು ಯಾವ ಕ್ರಮಗಳನ್ನು ಸೂಚಿಸುತ್ತೀರಿ?

PART – B

VALUE EDUCATION (III semester)

V. Answer any <u>ONE</u> of the following in not less than a page. (1x5=5)

ಈ ಕೆಳಗಿನ ಯಾವುದಾದರೂ ಒಂದು ಪ್ರಶ್ನೆಗೆ ಒಂದು ಪುಟಕ್ಕೆ ಮೀರದಂತೆ ಬರೆಯಿರಿ.

19. Write a short note on IVF.

IVF ಬಗ್ಗೆ ಒಂದು ಲಘು ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ.

20. List down the various disadvantages of artificial birth control methods.

ಕೃತಕ ಜನನ ನಿಯಂತ್ರಣ ವಿಧಾನಗಳ ವಿವಿಧ ಅನಾನುಕೂಲಗಳನ್ನು ಪಟ್ಟಿ ಮಾಡಿ.

VI. Answer any <u>ONE</u> of the following in not less than two pages. (1x10=10)

ಈ ಕೆಳಗಿನ ಯಾವುದಾದರೂ ಒಂದು ಪ್ರಶ್ನೆಗೆ ಎರಡು ಪುಟಕ್ಕೆ ಮೀರದಂತೆ ಬರೆಯಿರಿ.

21. Examine the various desirable qualities required for a successful marriage.

ಯಶಸ್ವಿ ದಾಂಪತ್ಯಕ್ಕೆ ಬೇಕಾದ ವಿವಿಧ ಅಪೇಕ್ಷಣೀಯ ಗುಣಗಳನ್ನು ಪರೀಕ್ಷಿಸಿ.

22. Explain various methods to build healthy families in the society.

ಸಮಾಜದಲ್ಲಿ ಆರೋಗ್ಯಕರ ಕುಟುಂಬಗಳನ್ನು ನಿರ್ಮಿಸಲು ಬೇಕಾದ ವಿವಿಧ ವಿಧಾನಗಳನ್ನು ವಿವರಿಸಿ.

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(2024 Batch only)

AH4JUDC213 Reg. No.: | | | | | | | | |

St Aloysius (Deemed to be University), Mangaluru

School of Arts and Humanities

(UG Programme)

B.Sc. (Visual Communication) - Semester III-Degree Examination

October/November- 2025

Advanced Photography

Time: $2^1/_2$ Hours **Max Marks: 60**

SECTION – A

Answer any FIVE of the following. **(5x2=10)**

1. ISO
2. Prime Lens
3. DOP
4. Ad-Shoot
5. Viewfinder
6. AEB
7. Wildlife Photography

SECTION - B

Answer any FOUR of the following. **(4x5=20)**

8. Discuss the significance of aperture in photography. Explain how different aperture settings affect exposure and depth of field in photographs.
9. Define the term "studio photography equipment." List and briefly describe three fundamental pieces of equipment commonly used in studio photography setups.
10. List and briefly explain the key elements that should be included in a photoshoot plan. Why is it important to have a well-detailed plan before starting a photoshoot?
11. List and briefly explain three commonly used industry standard software programs for advanced photo retouching and editing.
12. What is still-life photography? Describe its techniques and applications in indoor and outdoor shoots.
13. Define the term "portrait lighting." Name and describe three classic portrait lighting setups used in studio photography.

SECTION – C

Answer any THREE of the following. **(3x10=30)**

14. Define "artificial lighting" and its significance in photography and visual communication. Discuss the primary types of artificial lighting sources commonly used and their unique characteristics.
15. Analyze the role of photojournalism as a specialized genre in photography. Discuss the ethical responsibilities and challenges that photojournalists face when documenting news events.
16. What are reflectors & diffusers? Explain how they help in controlling light
17. Explain the concept of the exposure triangle in photography. How do ISO, shutter speed and aperture interact with each other, and what changes occur in the image when their settings are adjusted?

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(2024 Batch only)

AH4JUDC214 Reg. No.: | | | | | | | | |

St Aloysius (Deemed to be University), Mangaluru

School of Arts and Humanities

(UG Programme)

B.Sc. (Visual Communication) - Semester III- Degree Examination

October/November -2025

Introduction to Film Art

Time: $2^1/_2$ Hours **Max Marks: 60**

SECTION – A

Answer any FIVE of the following. **(5x2=10)**

1. Silent Films
2. Akira Kurosawa
3. Psychoanalysis
4. Post-Production
5. Avant-garde
6. Semiotics
7. Marxism

SECTION - B

Answer any FOUR of the following. **(4x5=20)**

8. Evaluate the cultural relevance of Girish Kasaravalli's films in the context of modern India. Choose any two of his films for analysis.
9. Design a creative poster and conduct a semiotic analysis of it.
10. Describe how the strategic use of color, lighting, and composition can convey character development and symbolism in a visual narrative. Offer examples from different genres, such as film, photography, or graphic novels.
11. Explain the key characteristics of Classical Hollywood cinema and how it contributed to the success of the studio system during its heyday.
12. What are the major contributions of D.W. Griffith to world cinema?
13. What are the key camera angles and movements commonly used in cinematography? How do these techniques influence the viewer's perception of the story?

SECTION – C

Answer any THREE of the following. **(3x10=30)**

14. Trace a detailed timeline of the Indian film industry from a pan-Indian cinema perspective.
15. Identify different shot choices and camera movements used in a movie of your choice and do analysis.
16. Select a specific film known for its use of visual symbolism and motifs. Analyze how the filmmaker uses visual elements such as color, objects, or recurring symbols to convey deeper meaning or character development. How does the careful placement of these symbols enhance the overall storytelling?
17. Explain in detail production process with examples.

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(2024 Batch only)

AH4JUDC215 Reg. No.: | | | | | | | | |

St Aloysius (Deemed to be University)

Mangaluru

School of Arts and Humanities

(UG Programme)

B.Sc. (Visual Communication) - Semester III-Degree Examination

October/November -2025

Media Law and Ethics

Time: $2^1/_2$ Hours **Max Marks: 60**

SECTION – A

Answer any FIVE of the following. **(5x2=10)**

1. Political influences
2. CBFC
3. Copyright
4. Section 292
5. Fourth Estate
6. Article 19(1)(a)
7. Contempt of court

SECTION - B

Answer any FOUR of the following. **(4x5=20)**

8. Discuss how Directive Principles of State Policy guide the functioning of the government despite being non-enforceable.
9. How did the IT Act Amendment (2008) enhance cyber security and address emerging online threats?
10. Discuss how IPR and the copyright Act of 1957 protect creative work?
11. Analyze the role of human rights advocacy through mass media.
12. Explain the difference between slander & libel is the context of defamation.
13. Analyze the implications of Section 124A of the IPC regarding sedition and its relevance in modern journalism

SECTION – C

Answer any THREE of the following. **(3x10=30)**

14. Evaluate the role of the cinematograph Act, 1952, is regulating film censorship?
15. Discuss the significance of the Official Secrets Act, 1923, in safeguarding national security. How does it impact investigative journalism and transparency?
16. Evaluate the consequences of media negligence in reporting sensitive issues. How can accountability be ensured in such cases?
17. Examine the impact of the emergency of 1975-77 on press fractions?

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(2024 Batch Onwards)

LS2AUDC200 Reg. No.: | | | | | | | | |

St Aloysius (Deemed to be University)

Mangaluru

School of Life Sciences (UG Programme)

B.Sc. (Botany) Semester III – Degree Examination

October/November - 2025

PLANT ANATOMY AND DEVELOPMENTAL BIOLOGY

Time: $2^1/_2$ Hours **Max Marks: 60**

SECTION – A

Define/Answer any FIVE of the following. **(5x2=10)**

1. Write any two identifying features of parenchyma.
2. Mention any two functions of quiescent centre.
3. What are Casparian thickenings? Where are they seen?
4. What is Morphogenesis?
5. What is totipotency?
6. What is male gametophyte?

SECTION - B

Answer any FOUR of the following. **(4x5=20)**

7. Explain the structure and composition of plant cell wall.
8. Explain different stomata based on the variable behaviour of stomatal movements.
9. Give a brief account of ultrastructure of meristems.
10. Explain the structure of an anatropous ovule.
11. With a neat labelled sketch describe the structure of *Acetabularia*.

SECTION – C

Answer any THREE of the following. **(3x10=30)**

12. Describe the transformation of vegetative apex into floral apex. What are the factors affecting transition?
13. Explain intrastelar secondary growth with a neat labelled diagram in dicot stem.
14. Explain the distribution, structure and functions of water conducting tissue.
15. Explain in detail cellular and free nuclear endosperm.

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(2024 Batch Onwards)

LS2BUDC201 Reg. No.: | | | | | | | | |

St Aloysius (Deemed to be University)

Mangaluru

School of Life Sciences (UG Programme)

B.Sc. (Zoology) Semester III – Degree Examination

October/November -2025

Molecular Biology, Bioinstrumentation and Techniques in Biology

Time: $2^1/_2$ Hours **Max Marks: 60**

SECTION – A

Answer any FIVE of the following. **(5x2=10)**

1. Name the Factors responsible for carrying out transcription in eukaryotic cells.
2. What is translation in molecular biology?
3. Define gene silencing.
4. What are post transcriptional modifications? Mention the processes involved in post transcriptional modifications in eukaryotes.
5. What is the principle of light microscopy?
6. What is the role of the detector in HPLC?

SECTION - B

Answer any FOUR of the following. **(4x5=20)**

7. With a neat labelled diagram explain structure of gene in eukaryotes.
8. Working principle of florescent microscope.
9. Explain the concept of catabolite repression in the lac operon.
10. Describe the working principle of a colorimeter.
11. Compare and contrast the different types of centrifuge.

SECTION – C

Answer any THREE of the following. **(3x10=30)**

12. Compare and contrast TLC with other types of chromatography, such as column chromatography and gas chromatography.
13. Give an explanatory note on the different types of blotting techniques.
14. Explain the process of Transcription in prokaryotes.
15. Write an explanatory note on the regulation of gene expression in eukaryotes.

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(2024 Batch Onwards)

LS2CUDC202 Reg. No.: | | | | | | | | |

St Aloysius (Deemed to be University)

Mangaluru

School of Life Sciences (UG Programme)

B.Sc. (Biotechnology) Semester III – Degree Examination

October/November - 2025

Biochemistry and Bioanalytical Techniques

Time: $2^1/_2$ Hours **Max Marks: 60**

SECTION – A

Define/Answer any FIVE of the following. **(5x2=10)**

1. Define simple lipids and give one example.
2. What type of sugar is found in RNA? Draw its structure.
3. State two functions of rRNA.
4. List any two applications of UV-Vis spectrophotometry in biochemistry.
5. What is a zymogen? Give one example.
6. Calculate the retention factor (Rf) for a component that traveled 6.5 cm from the origin while the solvent front traveled 10.0 cm.

SECTION - B

Answer any FOUR of the following. **(4x5=20)**

7. Compare enantiomers and epimers of monosaccharides by analyzing their structural differences with suitable examples.
8. Discuss the Cot curve and its application in the study of DNA complexity.
9. Explain the Michaelis–Menten equation and its significance in enzyme kinetics.
10. Describe the principle and main components of an HPLC system.
11. Explain the models describing active site of enzymes.

SECTION – C

Answer any THREE of the following. **(3x10=30)**

12. Illustrate the preparation, setup, and running of an agarose gel electrophoresis experiment.
13. Discuss the sources, functions, and deficiency symptoms of Vitamin D.
14. Discuss the secondary structure of proteins with suitable examples.
15. Explain the principle, methodology and applications of paper chromatography.

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(2024 Batch Onwards)

LS2DUDC203 Reg. No.: | | | | | | | | |

St Aloysius (Deemed to be University)

Mangaluru

School of Life Sciences (UG Programme)

B.Sc. (Microbiology) Semester III – Degree Examination

October/November - 2025

MICROBIAL DIVERSITY

Time: $2\frac{1}{2}$ Hours **Max Marks: 60**

SECTION – A

Define/Answer any FIVE of the following. **(5x2=10)**

1. List any two contrasting characters between Bacteria and Eukarya.
2. Name any two morphological features of microbes used in their taxonomy.
3. Mention the cell wall composition of Actinomycetes.
4. Name four species of plasmodium.
5. Contrast between the bacteriophages that follow the lytic cycle and the lysogenic cycle.
6. List the different types of spores in Fusarium.

SECTION - B

Answer any FOUR of the following. **(4x5=20)**

7. Distinguish different levels of biodiversity.
8. Write a note on the general characters of Cyanobacteria.
9. Discuss Trichomoniasis.
10. Illustrate one-step growth curve of viruses.
11. Write a note on the morphology of yeast.

SECTION – C

Answer any THREE of the following. **(3x10=30)**

12. Elaborate 5 kingdom classification system of organisms.
13. Explain asexual modes of reproduction in fungi.
14. Explain in detail about *Thermus aquaticus.*
15. Discuss plaque assay for phages in detail.

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(2024 Batch Onwards)

LS2EUDC204 Reg. No.: | | | | | | | | |

St Aloysius (Deemed to be University)

Mangaluru

School of Life Sciences (UG Programme)

B.Sc. (Biochemistry) - Semester III – Degree Examination

October/November -2025

HUMAN PHYSIOLOGY AND NUTRITION

Time: $2^1/_2$ Hours **Max Marks: 60**

SECTION – A

Answer any FIVE of the following. **(5x2=10)**

1. Identify the three main types of blood vessels and briefly state their functions.
2. What is pellagra?
3. Name two key components of a liver lobule and mention their basic function.
4. Name antisteritity vitamin.
5. Give any two factors affecting basal metabolic rate (BMR).
6. Name any two essential amino acids.

SECTION - B

Answer any FOUR of the following. **(4x5=20)**

7. Explain any two natural toxicants in food with examples.
8. Differentiate between Kwashiorkor and Marasmus.
9. Describe the role of hemoglobin in the transport of oxygen in the blood.
10. Write a note the structure and biological importance of vitamin B1.
11. Explain the role of parathyroid hormone.

SECTION – C

Answer any THREE of the following. **(3x10=30)**

12. Discuss the processes of glomerular filtration, tubular reabsorption, and secretion.
13. Explain cardiac conduction and add a note on ECG.
14. Explain the factors affecting BMR.
15. Illustrate the mechanism of inhalation & exhalation during pulmonary ventilation.

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(2024 Batch Onwards)

LS2FUDC205 Reg. No. : | | | | | | | | |

St Aloysius (Deemed to be University)

Mangaluru

School of Life Sciences (UG Programme)

B.Sc. (Food Science) Semester III – Degree Examination

October/November – 2025

BASICS OF FOOD SAFETY AND QUALITY CONTROL

Time: 2½ Hours **Max. Marks: 60**

SECTION – A

Define/Answer any FIVE of the following. **(5x2=10)**

1. Define food contamination.
2. Define food safety.
3. Differentiate between Quality assurance and Quality control in food industry.
4. Expand the term "COA" in supplier control.
5. What do you mean by Adulteration? Give examples for adulterants.
6. Expand FIFO. Where is it practiced?

SECTION – B

Answer any FOUR of the following. **(4x5=20)**

7. Write short notes on the importance of HACCP in food safety.
8. What penalties can be imposed for operating without a valid FSSAI license?
9. Discuss in detail the concept of approved health claims.
10. Explain physical contamination in food. Add a note on its sources and effects on consumers.
11. Explain the concept of traceability and recall in food industry.

SECTION – C

Answer any THREE of the following. **(3x10=30)**

12. Discuss in detail the Good Manufacturing Practices (GMPs).
13. What are the steps involved in cleaning and sanitation in the food industry? Explain the various cleaning and sanitizing agents used.
14. Explain the importance of food handler training and hygienic infrastructure in preventing foodborne illnesses.
15. Elaborate on the National food regulatory agencies.

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(2024 Batch Onwards)

PS1BUDC201 Reg. No.: | | | | | | | | |

St Aloysius (Deemed to be University)

Mangaluru

School of Physical Sciences (UG Programme)

B.Sc. (Chemistry) Semester III – Degree Examination

October/November - 2025

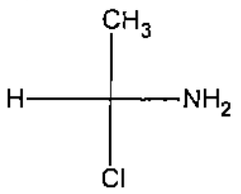
ANALYTICAL AND ORGANIC CHEMISTRY - II

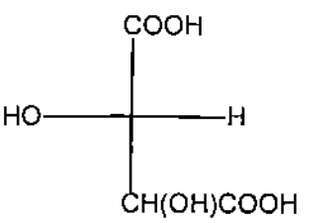
Time: $2^1/_2$ Hours **Max Marks: 60**

SECTION – A

Answer any FIVE of the following. **(5x2=10)**

1. Write any two limitations of flame photometry.
2. Define Beer's law. Write the mathematical expression associated with it.
3. What is the role of synergic reagents and masking reagents in solvent extraction?
4. Mention the two types of ion exchange resins? Give one example each.
5. Write the Friedel crafts acylation reaction of naphthalene.
6. Give a reaction of Arndt-Eistert synthesis.
7. Assign R/S nomenclature for the following molecules.

a) 

b) 

8. What is a stereogenic centre? Give an example.

SECTION - B

Answer any TEN of the following. **(10x5=50)**

9. Describe the instrumentation of a single beam spectrophotometer with a labeled diagram.
10. Explain the determination of sulphate by turbidimetric method.
11. Explain the principle and procedure involved in the determination of iron by colorimetry.
12. Explain the preparation of thin layer chromatographic plate. Give any two applications of TLC.
13. Discuss the principle of column chromatography. Give an example for stationary and Mobile Phase used in Column Chromatography.
14. Explain the classification of chromatography based on interaction involved between mobile phase and stationary phase.
15. Describe Haworth synthesis of napthalene.
16. Explain the mechanism involved in Beckmann rearrangement.
17. What is Reimer-Tiemann reaction? Explain with the mechanism.
18. How to determine configuration of geometrical isomerism using melting point and dipole moment?
19. Explain the optical activity of Lactic acid.
20. Explain the conformations analysis of cyclohexane.

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(2024 - Batch onwards)

PS1CUDC202 Reg No : | | | | | | | | |

St Aloysius College (Deemed to be University)
Mangaluru
School of Physical Sciences
(UG Programme)
B.Sc. Semester III - Degree Examination
October/November-2025
MATHEMATICS
Ordinary Differential Equations and Real Analysis

Time : 2½ Hours **Max. Marks : 60**

SECTION - A

Answer any FIVE of the following. **(5x2=10)**

1. Verify whether $f(x,y) = x\sin(\frac{x}{y}) + y(\log x - \log y)$ is homogeneous.
2. Solve: $\frac{dy}{dx} = \frac{x^2+2}{y}$.
3. Find the particular integral of $(D^2-1)y = 2+5x$.
4. Find the complementary solution of $D^2(D^2-1)y = 0$.
5. Check if the series $\sum_{n=1}^{\infty}(\frac{1}{3^n} - \frac{1}{4^n})$ is convergent or divergent.
6. Check whether the sequence $\{\frac{1}{n}\}$ is increasing or decreasing.
7. Check the convergence of $\sum_{n=2}^{\infty}(-1)^n \frac{1}{(\log n)^n}$.
8. Define an alternating series.

SECTION - B

Answer any TEN of the following. **(10x5=50)**

9. Solve: $x^2ydx - (x^3-y^3)dy = 0$.
10. Solve: $\frac{dy}{dx} = (4x+y+1)^2,\ y(0) = 1$.
11. Solve: $\left(\frac{e^{-2\sqrt{x}}}{\sqrt{x}} - \frac{y}{\sqrt{x}}\right)\frac{dx}{dy} = 1$.
12. Solve: $x^3\frac{d^3y}{dx^3} + 2x^2\frac{d^2y}{dx^2} + 2y = 10\left(x + \frac{1}{x}\right)$.
13. Solve: $(D^4+3D^2-4)y = \cos 3x$.
14. Solve: $(D^2-2D+2)y = e^x\cos x$.
15. Check if the following infinite series are convergent or divergent. If it is convergent, find the sum.
    i) $\sum_{n=1}^{\infty}(\frac{2}{3})^n$ ii) $\sum_{n=1}^{\infty} e^{-n}$.
16. Using the definition, prove that the sequence $\{\frac{n}{2n+1}\}$ has limit $\frac{1}{2}$.
17. Prove that a bounded monotonic sequence is convergent.
18. State and prove Alternating Series test.
19. Check the convergence of the following series:
    i) $\sum_{n=1}^{\infty}(-1)^n\left(\frac{3^{2n+1}}{n^{2n}}\right)$ ii) $\sum_{n=1}^{\infty}(-1)^{n+1}\frac{3^n}{n!}$.
20. Check if the following series are convergent or divergent:
    i) $\sum_{n=1}^{\infty}(-1)^n\frac{1}{2n+5}$ ii) $\sum_{n=1}^{\infty}(-1)^n\frac{1}{n^2+8}$.

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(2024 Batch Onwards)

PS1DUDC203 Reg. No.: | | | | | | | | |

St Aloysius (Deemed to be University)

Mangaluru

School of Physical Sciences (UG Programme)

B.Sc. (Statistics) Semester III – Degree Examination

October/November 2025

CALCULUS AND CONTINUOUS PROBABILITY DISTRIBUTIONS

Time: $2^1/_2$ Hours **Max Marks: 60**

SECTION – A

Answer any <u>FIVE</u> of the following. **(5x2=10)**

1. Define limits of a function.
2. Define Cauchy distribution.
3. Prove that Uniform distribution has a valid pdf.
4. State the mean and variance of Beta distribution of first kind.
5. Find the MGF of Standard normal distribution.
6. State the relationship between t, F and Chi-square distribution
7. Define sampling distribution of the statistic.
8. State De-Moivre's-Laplace theorem.

SECTION - B

Answer any <u>TEN</u> of the following. **(10x5=50)**

9. Evaluate

   i) $\int_0^8 (12 + 3y + 6y^2)dy$

   ii) $\int_{-1}^{-3} \left(\frac{4}{x^2} + \frac{2x}{3}\right) dx$

10. Evaluate

    i) $\int_0^\infty x^5 e^{-2x} dx$

    ii) $\int_0^1 x^3(1-x)^2 dx$

11. Derive the mean and variance of Exponential distribution with parameter θ.
12. Derive the r^{th} raw moment of Beta distribution of second kind.
13. Derive the MGF of Double parameter Gamma distribution.
14. Derive the Median of Normal distribution.
15. Derive the mean and variance of Weibull distribution.
16. Derive Mode of Chi-square distribution.
17. Derive mean and variance of t distribution.
18. Derive the mean and variance of F distribution.
19. Explain the steps involved in the generation of random numbers from exponential distribution.
20. Briefly explain Monte Carlo method of simulation and state its application in Statistics.

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(2024 Batch Onwards)

PS1EUDC204 Reg. No.: | | | | | | | | |

St Aloysius (Deemed to be University)

Mangaluru

School of Physical Sciences (UG Programme)

B.Sc. (ELECTRONICS) Semester III– Degree Examination

October/November - 2025

Analog Circuits, Principles of Radio Communication and Digital Circuits

Time: 2 ½ Hours **Max Marks: 60**

SECTION – A

Answer any FIVE of the following. **(5x2=10)**

1. Draw the structure of a TRIAC.
2. What is meant by volatile memory? Give one example.
3. Draw the circuit diagram of series transistor regulator.
4. Draw the circuit of a class A transformer coupled power amplifier.
5. Mention the conditions of Barkhausen's criteria for sustained oscillations.
6. Draw the circuit diagram of Positive clamper and briefly explain the working.
7. An unmodulated carrier has amplitude of 10V, and the amplitude of modulating signal is 2V. If the carrier power is 1000W, calculate the total power and the power carried by the side bands.
8. Define modulation index of FM signal. Give the equation for the modulation index of an FM wave.

SECTION - B

Answer any TEN of the following. **(10x5=50)**

9. With necessary circuit diagram explain 4x4 diode ROM. Explain how read process is performed in it.
10. With necessary circuit diagram explain the action of a dynamic MOS cell. Explain how read and write operations are carried out in dynamic MOS cell.
11. With necessary circuit diagram explain the action of a mod-16 ripple(asynchronous) counter using JKFF.
12. With necessary diagrams discuss the classification of power amplifiers based on the placement of Q point.
13. With necessary block diagram obtain the expression for the efficiency of a class B power amplifier. Show that its maximum efficiency is 78.5%.
14. With necessary diagrams explain the action a controlled half wave rectifier using an SCR.
15. With a neat circuit diagram derive the expression for the output voltage of an Instrumentation amplifier.
16. With a neat circuit diagram explain the working of a Phase shift oscillator.
17. Define Amplitude modulation and Derive the expression for the instantaneous voltage of an AM wave.
18. With circuit diagram explain the working of an Astable Multivibrator using IC 555. Give the expression for its frequency.
19. With a circuit diagram and input /output waveform explain the working of a Positive clipper
20. With a labelled diagram, explain Yagi-Uda Antenna.

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(2024 Batch onwards)

IT3AUSE227 Reg. No.: | | | | | | | | |

St Aloysius (Deemed to be University)

Mangaluru

School of Information Science and Technology

(UG Programme)

B.Sc. (Data Science) / B.C.A. - Semester III – Degree Examination

October/November - 2025

OPEN-SOURCE TOOLS

Time: 1 ½ Hours **Max Marks: 30**

SECTION – A

Answer any FIVE of the following. **(5x2=10)**

1. What type of software is Joomla primarily used for?
2. What is the primary advantage of using version control systems like Git in collaborative software development?
3. What is the Apache HTTP Server commonly used for?
4. In what scenarios would developers and organizations benefit from using LibreOffice as an office suite?
5. Name one of the operating systems in the Berkeley Software Distribution (BSD) family.
6. Why is there a need for Open Source Software?
7. What is GPL?

SECTION - B

Answer any TWO of the following. **(2x5=10)**

8. Explain the usage and benefits of Argo UML in software development.
9. Compare Free Software and Open Source Software.
10. Discuss how reverse engineering in Argo UML helps understand legacy systems.
11. Write a note on Wikipedia.

SECTION – C

Answer any ONE of the following. **(1x10=10)**

12. Explain the principles of Open Source Software and discuss its advantages in the industry.
13. Compare BugZilla and Trac in terms of features, usability, and integration with development tools.

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(2024 Batch onwards)

IT3AUVE231b Reg. No.: | | | | | | | | |

St Aloysius (Deemed to be University)

Mangaluru

School of Information Science and Technology

(UG Programme)

B.A./B.Sc. - Semester III – Degree Examination

October/November - 2025

CYBER SECURITY

Time: 1 ½ Hours **Max Marks: 30**

SECTION – A

Answer any FIVE of the following. **(5x2=10)**

1. State any two components of communication technology used in cyberspace.
   ಸೈಬರ್‌ಸ್ಪೇಸ್‌ನಲ್ಲಿ ಬಳಸುವ ಸಂವಹನ ತಂತ್ರಜ್ಞಾನದ ಯಾವುದಾದರೂ ಎರಡು ಘಟಕಗಳನ್ನು ತಿಳಿಸಿ.
2. Describe two pitfall of excessive social media use.
   ಅತಿಯಾದ ಸಾಮಾಜಿಕ ಮಾಧ್ಯಮ ಬಳಕೆಯ ಎರಡು ಅಪಾಯಗಳನ್ನು ವಿವರಿಸಿ.
3. Explain the role of the National Cyber Crime Reporting Portal in India.
   ಭಾರತದಲ್ಲಿ ರಾಷ್ಟ್ರೀಯ ಸೈಬರ್ ಅಪರಾಧ ವರದಿ ಮಾಡುವ ಪೋರ್ಟಲ್‌ನ ಪಾತ್ರವನ್ನು ವಿವರಿಸಿ.
4. Justify: Cybersecurity is not only a technical issue, but also a social issue.
   ಸಮರ್ಥಿಸಿ: ಸೈಬರ್ ಭದ್ರತೆ ಕೇವಲ ತಾಂತ್ರಿಕ ಸಮಸ್ಯೆಯಲ್ಲ, ಸಾಮಾಜಿಕ ಸಮಸ್ಯೆಯೂ ಆಗಿದೆ.
5. Identify any two elements of Internet infrastructure for data transfer.
   ದತ್ತಾಂಶ ವರ್ಗಾವಣೆಗಾಗಿ ಇಂಟರ್ನೆಟ್ ಮೂಲಸೌಕರ್ಯದ ಯಾವುದಾದರೂ ಎರಡು ಅಂಶಗಳನ್ನು ಗುರುತಿಸಿ.
6. How can digital forensics assist in solving cybercrime cases?
   ಸೈಬರ್ ಅಪರಾಧ ಪ್ರಕರಣಗಳನ್ನು ಪರಿಹರಿಸುವಲ್ಲಿ ಡಿಜಿಟಲ್ ಫೋರೆನ್ಸಿಕ್ಸ್ ಹೇಗೆ ಸಹಾಯ ಮಾಡುತ್ತದೆ?
7. List two steps to report inappropriate content online.
   ಅನುಚಿತ ವಿಷಯವನ್ನು ಆನ್‌ಲೈನ್‌ನಲ್ಲಿ ವರದಿ ಮಾಡಲು ಎರಡು ಹಂತಗಳನ್ನು ಪಟ್ಟಿ ಮಾಡಿ.

SECTION - B

Answer any TWO of the following. **(2x5=10)**

8. What is ISOC? Describe the differences between Internet and World Wide Web with examples.
   ಐಎಸ್‌ಒಸಿ ಎಂದರೇನು? ಇಂಟರ್ನೆಟ್ ಮತ್ತು ವರ್ಲ್ಡ್ ವೈಡ್ ವೆಬ್ ನಡುವಿನ ವ್ಯತ್ಯಾಸಗಳನ್ನು ಉದಾಹರಣೆಗಳೊಂದಿಗೆ ವಿವರಿಸಿ.
9. Discuss the Importance of laws related to posting inappropriate content online.
   ಆನ್‌ಲೈನ್‌ನಲ್ಲಿ ಅನುಚಿತ ವಿಷಯವನ್ನು ಪೋಸ್ಟ್ ಮಾಡುವುದಕ್ಕೆ ಸಂಬಂಧಿಸಿದ ಕಾನೂನುಗಳ ಪ್ರಾಮುಖ್ಯತೆಯನ್ನು ಚರ್ಚಿಸಿ.
10. Describe how social engineering attacks are carried out with one real-world example.
    ಒಂದು ನೈಜ-ಪ್ರಪಂಚದ ಉದಾಹರಣೆಯೊಂದಿಗೆ ಸಾಮಾಜಿಕ ಎಂಜಿನಿಯರಿಂಗ್ ದಾಳಿಗಳನ್ನು ಹೇಗೆ ನಡೆಸಲಾಗುತ್ತದೆ ಎಂಬುದನ್ನು ವಿವರಿಸಿ.

Contd...2

11. Read the following case study carefully and answer the questions that follow.

Case Study:

"Cambridge Analytica and Facebook Scandal (2016–2018)"

Between 2016 and 2018, the world learned of one of the most notorious data privacy scandals involving Cambridge Analytica, a political consulting firm, and Facebook. The firm harvested personal data of nearly 87 million Facebook users without their consent through a personality quiz app that exploited Facebook's API. Although only 270,000 users installed the app, the data of their friends was also collected, amplifying the scale of the breach. Cambridge Analytica used this data to build detailed psychological profiles of individuals and deliver micro-targeted political advertisements. It was alleged that the firm's tactics influenced key political events, including the 2016 U.S. Presidential election and the Brexit referendum. This raised serious concerns about manipulation of democratic processes through social media platforms. The scandal severely damaged Facebook's reputation, leading to CEO Mark Zuckerberg testifying before the U.S. Congress. Governments around the world began scrutinizing how tech companies handle personal data. The case also fueled momentum for stronger privacy regulations, including the European Union's General Data Protection Regulation (GDPR), which came into force In 2018. This case highlighted the dark side of social media: the exploitation of personal data for profit and politics. It demonstrated the urgent need for stricter oversight, transparency in data handling, and global data protection frameworks.

Questions:

a) Explain how Cambridge Analytica collected data from Facebook users.
b) Analyse the role of social media platforms in enabling the misuse of personal data.
c) Evaluate the impact of this scandal on public trust in online social networks.
d) Suggest legal and technical measures to prevent unauthorized data harvesting.
e) Discuss how this case highlights the need for global data protection laws.

ಕೆಳಗಿನ ಪ್ರಕರಣ ಅಧ್ಯಯನವನ್ನು ಎಚ್ಚರಿಕೆಯಿಂದ ಓದಿ ಮತ್ತು ಕೆಳಗಿನ ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಿಸಿ.

ಪ್ರಕರಣ ಅಧ್ಯಯನ:

"ಕೇಂಬ್ರಿಡ್ಜ್ ಅನಾಲಿಟಿಕಾ ಮತ್ತು ಫೇಸ್‌ಬುಕ್ ಹಗರಣ (2016–2018)"

2016 ಮತ್ತು 2018 ರ ನಡುವೆ, ರಾಜಕೀಯ ಸಲಹಾ ಸಂಸ್ಥೆಯಾದ ಕೇಂಬ್ರಿಡ್ಜ್ ಅನಾಲಿಟಿಕಾ ಮತ್ತು ಫೇಸ್‌ಬುಕ್ ಒಳಗೊಂಡ ಅತ್ಯಂತ ಕುಖ್ಯಾತ ಡೇಟಾ ಗೌಪ್ಯತೆ ಹಗರಣಗಳಲ್ಲಿ ಒಂದನ್ನು ಜಗತ್ತು ತಿಳಿದುಕೊಂಡಿತು. ಫೇಸ್‌ಬುಕ್‌ನ API ಅನ್ನು ದುರ್ಬಳಕೆ ಮಾಡಿಕೊಂಡ ವ್ಯಕ್ತಿತ್ವ ರಸಪ್ರಶ್ನೆ ಅಪ್ಲಿಕೇಶನ್ ಮೂಲಕ ಕಂಪನಿಯು ಸುಮಾರು 87 ಮಿಲಿಯನ್ ಫೇಸ್‌ಬುಕ್ ಬಳಕೆದಾರರ ವೈಯಕ್ತಿಕ ಡೇಟಾವನ್ನು ಅವರ ಒಪ್ಪಿಗೆಯಿಲ್ಲದೆ ಸಂಗ್ರಹಿಸಿದೆ. ಕೇವಲ 270,000 ಬಳಕೆದಾರರು ಮಾತ್ರ ಅಪ್ಲಿಕೇಶನ್ ಅನ್ನು

Contd...3

ಸ್ಥಾಪಿಸಿದ್ದರೂ, ಅವರ ಸ್ನೇಹಿತರ ಡೇಟಾವನ್ನು ಸಹ ಸಂಗ್ರಹಿಸಲಾಗಿದೆ, ಇದು ಉಲ್ಲಂಘನೆಯ ಪ್ರಮಾಣವನ್ನು ಹೆಚ್ಚಿಸಿತು. ಕೇಂಬ್ರಿಡ್ಜ್ ಅನಾಲಿಟಿಕಾ ಈ ಡೇಟಾವನ್ನು ವ್ಯಕ್ತಿಗಳ ವಿವರವಾದ ಮಾನಸಿಕ ಪ್ರೊಫೈಲ್‌ಗಳನ್ನು ನಿರ್ಮಿಸಲು ಮತ್ತು ಸೂಕ್ಷ್ಮ-ಉದ್ದೇಶಿತ ರಾಜಕೀಯ ಜಾಹೀರಾತುಗಳನ್ನು ನೀಡಲು ಬಳಸಿಕೊಂಡಿತು. ಕಂಪನಿಯ ತಂತ್ರಗಳು 2016 ರ ಯುಎಸ್ ಅಧ್ಯಕ್ಷೀಯ ಚುನಾವಣೆ ಮತ್ತು ಬ್ರೆಕ್ಸಿಟ್ ಜನಾಭಿಪ್ರಾಯ ಸಂಗ್ರಹ ಸೇರಿದಂತೆ ಪ್ರಮುಖ ರಾಜಕೀಯ ಘಟನೆಗಳ ಮೇಲೆ ಪ್ರಭಾವ ಬೀರಿವೆ ಎಂದು ಆರೋಪಿಸಲಾಗಿದೆ. ಇದು ಸಾಮಾಜಿಕ ಮಾಧ್ಯಮ ವೇದಿಕೆಗಳ ಮೂಲಕ ಪ್ರಜಾಪ್ರಭುತ್ವ ಪ್ರಕ್ರಿಯೆಗಳನ್ನು ಕುಶಲತೆಯಿಂದ ನಿರ್ವಹಿಸುವ ಬಗ್ಗೆ ಗಂಭೀರ ಕಳವಳಗಳನ್ನು ಹುಟ್ಟುಹಾಕಿತು. ಈ ಹಗರಣವು ಫೇಸ್‌ಬುಕ್‌ನ ಖ್ಯಾತಿಗೆ ತೀವ್ರ ಹಾನಿಯನ್ನುಂಟುಮಾಡಿತು, ಇದು ಸಿಇಒ ಮಾರ್ಕ್ ಜುಕರ್‌ಬರ್ಗ್ ಯುಎಸ್ ಕಾಂಗ್ರೆಸ್ ಮುಂದೆ ಸಾಕ್ಷ್ಯ ನುಡಿಯಲು ಕಾರಣವಾಯಿತು. ಪ್ರಪಂಚದಾದ್ಯಂತದ ಸರ್ಕಾರಗಳು ಟೆಕ್ ಕಂಪನಿಗಳು ವೈಯಕ್ತಿಕ ಡೇಟಾವನ್ನು ಹೇಗೆ ನಿರ್ವಹಿಸುತ್ತವೆ ಎಂಬುದನ್ನು ಪರಿಶೀಲಿಸಲು ಪ್ರಾರಂಭಿಸಿದವು. ಈ ಪ್ರಕರಣವು 2018 ರಲ್ಲಿ ಜಾರಿಗೆ ಬಂದ ಯುರೋಪಿಯನ್ ಒಕ್ಕೂಟದ ಸಾಮಾನ್ಯ ದತ್ತಾಂಶ ಸಂರಕ್ಷಣಾ ನಿಯಂತ್ರಣ (GDPR) ಸೇರಿದಂತೆ ಬಲವಾದ ಗೌಪ್ಯತೆ ನಿಯಮಗಳಿಗೆ ಆವೇಗವನ್ನು ನೀಡಿತು. ಈ ಪ್ರಕರಣವು ಸಾಮಾಜಿಕ ಮಾಧ್ಯಮದ ಕರಾಳ ಮುಖವನ್ನು ಎತ್ತಿ ತೋರಿಸಿತು: ಲಾಭ ಮತ್ತು ರಾಜಕೀಯಕ್ಕಾಗಿ ವೈಯಕ್ತಿಕ ದತ್ತಾಂಶದ ಶೋಷಣೆ. ಕಠಿಣ ಮೇಲ್ವಿಚಾರಣೆ, ದತ್ತಾಂಶ ನಿರ್ವಹಣೆಯಲ್ಲಿ ಪಾರದರ್ಶಕತೆ ಮತ್ತು ಜಾಗತಿಕ ದತ್ತಾಂಶ ಸಂರಕ್ಷಣಾ ಚೌಕಟ್ಟುಗಳ ತುರ್ತು ಅಗತ್ಯವನ್ನು ಇದು ಪ್ರದರ್ಶಿಸಿತು.

ಪ್ರಶ್ನೆಗಳು:

ಎ) ಕೇಂಬ್ರಿಡ್ಜ್ ಅನಾಲಿಟಿಕಾ ಫೇಸ್‌ಬುಕ್ ಬಳಕೆದಾರರಿಂದ ಡೇಟಾವನ್ನು ಹೇಗೆ ಸಂಗ್ರಹಿಸಿತು ಎಂಬುದನ್ನು ವಿವರಿಸಿ.

ಬಿ) ವೈಯಕ್ತಿಕ ಡೇಟಾದ ದುರುಪಯೋಗವನ್ನು ಸಕ್ರಿಯಗೊಳಿಸುವಲ್ಲಿ ಸಾಮಾಜಿಕ ಮಾಧ್ಯಮ ವೇದಿಕೆಗಳ ಪಾತ್ರವನ್ನು ವಿಶ್ಲೇಷಿಸಿ.

ಸಿ) ಈ ಹಗರಣವು ಆನ್‌ಲೈನ್ ಸಾಮಾಜಿಕ ಜಾಲತಾಣಗಳ ಮೇಲಿನ ಸಾರ್ವಜನಿಕ ನಂಬಿಕೆಯ ಮೇಲೆ ಬೀರಿದ ಪರಿಣಾಮವನ್ನು ಮೌಲ್ಯಮಾಪನ ಮಾಡಿ.

ಡಿ) ಅನಧಿಕೃತ ದತ್ತಾಂಶ ಸಂಗ್ರಹಣೆಯನ್ನು ತಡೆಗಟ್ಟಲು ಕಾನೂನು ಮತ್ತು ತಾಂತ್ರಿಕ ಕ್ರಮಗಳನ್ನು ಸೂಚಿಸಿ.

ಇ) ಈ ಪ್ರಕರಣವು ಜಾಗತಿಕ ದತ್ತಾಂಶ ಸಂರಕ್ಷಣಾ ಕಾನೂನುಗಳ ಅಗತ್ಯವನ್ನು ಹೇಗೆ ಎತ್ತಿ ತೋರಿಸುತ್ತದೆ ಎಂಬುದನ್ನು ಚರ್ಚಿಸಿ.

SECTION – C

Answer any <u>ONE</u> of the following. **(1x10=10)**

12. Discuss the architecture of cyberspace and its role in global communication.

ಸೈಬರ್‌ಸ್ಪೇಸ್‌ನ ವಾಸ್ತುಶಿಲ್ಪ ಮತ್ತು ಜಾಗತಿಕ ಸಂವಹನದಲ್ಲಿ ಅದರ ಪಾತ್ರವನ್ನು ಚರ್ಚಿಸಿ.

13. Write a short note on:

a) Security issues related to social media.

b) Best practices for the use of social media.

ಟಿಪ್ಪಣಿ ಬರೆಯಿರಿ:

ಎ) ಸಾಮಾಜಿಕ ಮಾಧ್ಯಮಕ್ಕೆ ಸಂಬಂಧಿಸಿದ ಭದ್ರತಾ ಸಮಸ್ಯೆಗಳು.

ಬಿ) ಸಾಮಾಜಿಕ ಮಾಧ್ಯಮದ ಬಳಕೆಗೆ ಉತ್ತಮ ಅಭ್ಯಾಸಗಳು.

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(2024 Batch Onwards)

IT3BUDC200 Reg. No.: | | | | | | | | |

St Aloysius (Deemed to be University)

Mangaluru

School of Information Science and Technology

(UG Programme)

B.A./B.Sc. - Semester III - Degree Examination

October/November - 2025

COMPUTER ANIMATION

VISUAL EFFECTS

Time: $2^1/_2$ Hours **Max Marks: 60**

SECTION – A

Answer any FIVE of the following. **(5x2=10)**

1. What is compositing? Give an example.
2. Mention any two codes.
3. What is the use of Virtual Camera in After effects?
4. What is rotoscoping? Give an example
5. What is motion capture? Mention any 2 advantages
6. State the use of pre-composing.
7. What is 3D Camera Tracking?

SECTION - B

Answer any FOUR of the following. **(4x5=20)**

8. What is video editing? Explain the principles of editing.
9. Write down the steps to create an echo text animation.
10. Explain the uses of motion capture in VFX.
11. Write down the steps to motion track a text to a moving car.
12. Explain keylight 1.2 plugin in after effects.
13. What are the advantages of using Premiere Pro?

SECTION – C

Answer any TWO of the following. **(2x15=30)**

14. Explain all the different stages of Film/Movie Production.
15. Write down the steps to composite a day scene to a dark stormy night scene and export it using Premiere Pro.
16. Explain how the movie 'Interstellar' is an example for good visual storytelling

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(2024 Batch Onwards)

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Mangaluru

School of Information Science and Technology
(UG Programme)
B.Sc. (COMPUTER SCIENCE) - Semester III – Degree Examination

October/November - 2025
RELATIONAL DATA BASE MANAGEMENT SYSTEM

Time: 2 ½ Hours **Max Marks: 60**

SECTION – A

Answer any FIVE of the following. **(5x2=10)**

1. Define (i) AUTO_INCREMENT (ii) UNIQUE with example for each.
2. What is the role of a Database Administrator (DBA)?
3. What is Second Normal Form (2NF)?
4. How does ALTER instruction is used to rename a table?
5. Name any four aggregate functions.
6. Delete all records from Employees (Eno, Ename, Dob, Doj, Dept_Name) where Dept_ name ='SALES'
7. Define physical data independence.
8. Mention any two advantages of Views.

SECTION - B

Answer any TEN of the following. **(10x5=50)**

9. Explain different types of cardinality ratios with examples for each.
10. Define the terms (i) Data Abstraction (ii) Instances & Schema
11. Explain with example each about insertion, deletion and modification anomalies.
12. Write the syntax of CREATE, INSERT, DELETE, UPDATE, ALTER Commands.
13. Explain the PROJECT operations of relational algebra with example.
14. Explain Equi-join and theta-join operations with examples.
15. Explain any five string functions in MYSQL with syntax and example.
16. Explain in detail, how to CREATE a VIEW statement with example. Also explain the syntax of DROP VIEW statement with example.
17. Explain with example, the syntax used for adding, modifying, renaming and deleting a column using ALTER TABLE instruction.
18. With neat diagram, explain the different states of transaction.
19. Explain the ACID properties of DBMS.
20. Consider the following tables
    EMPLOYEE (Empno (PK), Ename, Deptno(FK), Salary),
    DEPARTMENT (Deptno(PK), Dname, Deptmgr),
    Write the syntax to create the above two tables with relations
    a) Find Empno, Ename and Salary for "Anamika"
    b) Find Name and salary of all employees of "computer science" Department.
    c) Find total and average salaries of all employees according to Department.

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(2024 Batch Onwards)

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St Aloysius (Deemed to be University)

Mangaluru

School of Information Science and Technology

(UG Programme)

B.Sc. (Data Science) - Semester III – Degree Examination

October/November - 2025

OBJECT ORIENTED CONCEPTS USING JAVA

Time: 2 ½ Hours **Max Marks: 60**

SECTION – A

Answer any FIVE of the following. **(5x2=10)**

1. What are objects? How are they created from class?
2. What are seperators? List various seperators in java.
3. How does string class differ from the StringBuffer class?
4. Differentiate method overloading with method overriding?
5. List any two methods of the File class in Java.
6. What is finally block? When and how it is used? Give a suitable example.
7. What is JDBC?
8. Explain any two advantage of Serialization.

SECTION - B

Answer any TEN of the following. **(10x5=50)**

9. What are the features of Java. Explain.
10. Explain switch statement with example.
11. Write a note on JVM.
12. Explain visibility controls in Java
13. What is inheritance? How do you define a subclass in Java? Explain with syntax and example.
14. What is class? How do you declare class and methods in java? explain with an example
15. Explain difference between byte stream and character stream in Java with example.
16. How can you read data from a file in Java? Write a program using FileReader.
17. Define an exception. How it is handled? Explain any five common exceptions in Java.
18. Explain the steps involved in communicating with a database using JDBC API.
19. Define thread? Explain life cycle of a thread.
20. Draw and explain the JDBC architecture with neat diagram.

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(2024 Batch Onwards)

IT3DUDC201 Reg. No.: | | | | | | | | |

St Aloysius (Deemed to be University)

Mangaluru

School of Information Science and Technology

(UG Programme)

B.Sc. (Data Science) - Semester III – Degree Examination

October/November - 2025

PYTHON PROGRAMMING FOR DATA SCIENCE

Time: 2 ½ Hours **Max Marks: 60**

SECTION – A

Answer any FIVE of the following. **(5x2=10)**

1. Name any two Python packages used for AI and Machine Learning.
2. What are the rules for naming identifier in Python?
3. What is the purpose of slicing in Python?
4. Define a list. How do you reverse elements in a list?
5. Write one Python statement to create a NumPy array using arange().
6. What is series in pandas? How does it differ from Dataframe?
7. What is order by clause? Give an example.
8. Name different data visualization Libraries.

SECTION - B

Answer any TEN of the following. **(10x5=50)**

9. List different types of functions arguments in Python with examples.
10. Explain all the data types available in Python.
11. List and explain five flavors and thrust areas of Python.
12. List any five list methods in Python and describe their purpose.
13. Differentiate between List, Tuple, Set and Dictionary with suitable examples.
14. Explain different operation with Sets.
15. List five attributes of a Pandas DataFrame and explain their significance.
16. Explain different types of inheritance with neat diagram.
17. Explain the creation of arrays using array(), zeros(), ones(), arange(), and linspace() with examples.
18. Write a python program to retrieve all the records from 'student' table with fields (Name, Regno, Mark1, Mark2, Mark3).
19. Define a Python package and its creation with an example. How is it different from a Python module?
20. What is data visualization? Explain its importance in data analysis.

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(2024 Batch Onwards)

IT3DUDC202 Reg. No.: | | | | | | | | |

St Aloysius (Deemed to be University)

Mangaluru

School of Information Science and Technology

(UG Programme)

B.Sc. (Data Science) - Semester III – Degree Examination

October/November - 2025

DATA WAREHOUSING AND DATA MINING

Time: 2 ½ Hours **Max Marks: 60**

SECTION – A

Answer any FIVE of the following. **(5x2=10)**

1. Mention any two vulnerabilities of data warehouses.
2. Differentiate between Data mining and query tool.
3. Mention any two challenges of data warehouse testing.
4. Differentiate between classification and clustering in data mining
5. Expand OLAP and OLTP
6. Mention any two differences between differentiate Data and Information.
7. List four types of views that need to be considered while designing a data warehouse.
8. Mention two characteristics of KNN.

SECTION - B

Answer any TEN of the following. **(10x5=50)**

9. Explain common mistakes to avoid in data mining.
10. Differentiate DBMS and DM. Explain three ways in which data mining systems use DBMS.
11. Explain the main challenges and issues in data mining.
12. Explain the two main approaches to classification.
13. Generate frequent item sets and association rules using the Apriori algorithm for the following grocery shop data set. Use minimum support=50% and minimum confidence=70%.

    Data set transactions of a grocery shop

Transaction ID	Items purchased
T_1	Bread,Milk,Butter
T_2	Bread ,Milk,
T_3	Milk,Eggs
T_4	Bread, Butter
T_5	Bread,Milk,Butter

14. Consider the data set given below which records whether an employee will receive a promotion based on projects completed and performance score.

Contd...2

Employee ID	Project completed	Performance score	Promotion
1	5	70	Yes
2	2	40	No
3	7	85	Yes
4	3	50	No
5	6	75	Yes

15. Write any five differences between Operational Database Systems and Data Warehouses
16. Draw and explain the three-tier architecture of the data warehouse model
17. Explain any two schemas of Multidimensional data model.
18. Explain two types of data mining interfaces.
19. Explain the five-step process for securing a data warehouse
20. Describe any five Data Warehouse testing.

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