T – 5711

Reg. No. : ....

Name : ....

Fourth Semester M.Sc. Degree Examination, July 2024

Computer Science

CS 542 C : COMPUTER VISION

(2021 Admission Onwards)

Time : 3 Hours

Max. Marks : 75

PART – A

Answer **all** questions. Each question carries **3** marks.

1. What is computer vision?

2. How are colors represented in the RGB color space?

3. How does linear filtering work?

4. Differentiate between neighborhood operators and point operators.

5. Give the significance of local image features.

6. What are medial representations in image processing?

7. List down the characteristic of edges in images.

8. Differentiate between instance recognition and object recognition.

9. Write short notes on basic image operations in OpenCV.

(9 × 3 = 27 Marks)

PART – B

Answer **any one** question from **each** Module. Each question carries **8** marks.

Module – I

10. Discuss the roles of image sampling and quantization in digital image processing.

OR

11. What is a QR code, and how does it function?

Module – II

12. Write short note on morphology in grayscale images.

OR

13. Brief the uses of dilation and erosion operations in binary images.

Module – III

14. List and explain two feature matching techniques used in computer vision.

OR

15. Explain in detail about multi-resolution analysis in image processing.

Module – IV

16. Write down the application of split and merge algorithm.

OR

17. Explain the basic theory behind edge detection.

Module – V

18. State the significance of human pose estimation.

OR

19. Explain the concept of Principal Component Analysis (PCA) and its application in computer vision.

Module – VI

20. What is skin smoothing and how it is performed in OpenCV?

OR

21. Explain the types of filtering in OpenCV?

(6 × 8 = 48 Marks)

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Fourth Semester M.Sc. Degree Examination, July 2024

Computer Science

CS 541 – RESEARCH METHODOLOGY AND REPORT WRITING

(2021 Admission Onwards)

Time : 3 Hours   Max. Marks : 75

SECTION – A

Answer **all** questions. Each question carries **3** marks.

1. What is literature review? Explain how it is useful for identifying research gap.

2. What do you mean by research design?

3. What is linear regression?

4. Distinguish between correlation coefficient and Karl' Pearson's coefficient.

5. How to read and write csv files in R programming?

6. What is *order()* and *rank()* in R? Give their syntax too.

7. What is Bibliography in research?

8. What is LaTeX?

9. What do you mean DOI?

(9 × 3 = 27 Marks)

SECTION – B

Answer **any one** question from each **Module**. Each question carries **8** marks.

Module – I

10. Explain the various types of research.

11. What is hypothesis? Discuss the formation of research hypothesis.

Module – II

12. Explain the different measures of central tendency.

13. Explain Karl Pearson's coefficient of correlation with the help of an example.

Module – III

14. Discuss any four statistical functions in R programming.

15. Explain the structure and function of any two loop control structure in R with suitable examples.

Module – IV

16. Explain the structure and components of scientific reports.

17. Explain the importance of seminar, workshop, symposium and conference in Research.

Module – V

18. What is BibTeX in LaTeX? Explain how do you cite BibTeX in LaTeX with suitable example.

19. Explain the steps for adding tables and images in LaTeX.

Module – VI

20. Explain the structure of a research paper in IEEE Transaction.

21. What is Plagiarism? Explain the importance of Plagiarism checking in research articles. List any two Plagiarism checking tools.

(6 × 8 = 48 Marks)