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| **Scheme of Valuation/Answer Key-**(Scheme of evaluation (marks in brackets) and answers of problems/key) |
| **APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**SIXTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019 |
| **Course Code: CS362** |
| **Course Name: COMPUTER VISION** |
| Max. Marks: 100 |  | Duration: 3 Hours |
| **PART A** |
|  |  | ***Answer all questions, each carries3 marks.*** | Marks |
| 1 |  | Limitations of pinhole camera -1.5 Marks and thin lenses -1.5 Marks. | (3) |
| 2 |  | BRDF definition -1.5 Marks and Line sources and area sources-1.5 Marks. | (3) |
| 3 |  | Trifocal geometry theory -1.5 Marks and Illustration -1.5 Marks. | (3) |
| 4 |  | Theory and Explanation-3 Marks. | (3) |
| **PART B** |
| ***Answer any two full questions, each carries9 marks.*** |
| 5 | a) | Different components of vision System-3 Marks. | (3) |
|  | b) | Affine to Euclidean images conversion theory and explanation-3 Marks. | (3) |
|  | c) | Shadows definition -1 Mark, umbra and penumbra difference -2 Marks. | (3) |
| 6 | a) | Algorithm -3 Marks and Explanation-3 Marks. | (6) |
|  | b) | Comparisons weak perspective projection and orthographic projection with illustration -3 Marks.  | (3) |
| 7 | a) | Four limitations of thick lens -3 Marks. | (3) |
|  | b) | Correlation, Multi-scale Edge Matching, Dynamic programming, Theory and Explanation -6 Marks. | (6) |
| **PART C** |
| ***Answer all questions, each carries3 marks.*** |
| 8 |  | Theory and flowchart -3 Marks. | (3) |
| 9 |  | Supervised learning and Unsupervised learning -1.5 Marks, Clustering and classification-1.5 Marks. | (3) |
| 10 |  | Pose definition -3 Marks. | (3) |
| 11 |  | Theory and Explanation-3 Marks. | (3) |
| **PART D** |
| ***Answer any two full questions, each carries9 marks.*** |
| 12 | a) | Bayesian decision theory discrete feature -3 Marks, Bayesian decision theory continuous feature -3 Marks. | (6) |
|  | b) | Cause -1 Marks and Solution -2 Marks. | (3) |
| 13 | a) | Definition with an example – 4 Marks. | (4) |
|  | b) | Pattern definition with an example-3 Marks, pattern recognition system description - 2 Marks. | (5) |
| 14 | a) | Algorithm -3 Marks and Explanation-3 Marks. | (6) |
|  | b) | Differences -3 Marks. | (3) |
| **PART E** |
| ***Answer any four full questions, each carries10 marks.*** |
| 15 | a) | Decision trees Theory -2 Marks, Algorithm -3 Marks, Example-2 Marks. | (7) |
|  | b) | Gini index and Entropy -3 Marks.  | (3) |
| 16 | a) | Linear discriminant based classifiers theory -2 Marks, Perceptron Algorithm and Explanation-5 Marks. | (7) |
|  | b) | Theory and Explanation-3 Marks. | (3) |
| 17 | a) | Algorithm-3 Marks. | (3) |
|  | b) |  Cluster centre computation-3 Marks, three cluster formation-4 Marks. | (7) |
| 18 | a) | Distance measure definition-1 Marks, Properties-2 Marks, Example-1 Marks. | (4) |
|  | b) | Genetic algorithm theory and explanation-4 Marks, Example-2 Marks. | (6) |
| 19 | a) | Neural network-3 Marks and Explanation -4 Marks. | (7) |
|  | b) | Linear discriminant functions for single category and multi category -3 Marks. | (3) |
| 20 | a) | Support vector machine theory and illustration-6 Marks, Advantages and Disadvantages-4 Marks. | (10) |
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