**Regulations:**

**A15**



**H.T No**

**Sreenidhi Institute of Science and Technology**

(An Autonomous Institution)

**Code No: 5H112 Date: 07-Jan-2020 (FN)**

**B.Tech I-Year I-Semester External Examination, Jan-2020 (Supplementary)**

**FUNDAMENTALS OF MATHEMATICS (BT)**

**Time: 3 Hours Max.Marks:75**

***Note: a****) No additional answer sheets will be provided.*

*b) All sub-parts of a question must be answered at one place only, otherwise it will not be valued.*

*c) Missing data can be assumed suitably.*

**Part - A Max.Marks:25**

**Answer all QUESTIONS.**

|  |  |  |
| --- | --- | --- |
| 1. | If is the set of all real numbers and  are two functions defined by  find | [3M] |
| 2. | Find the equation of the line joining through the point  having slope 2 | [3M] |
| 3. | Evaluate | [3M] |
| 4. | If , find | [3M] |
| 5. | If , find | [3M] |
| 6. | Evaluate | [2M] |
| 7. | Simplify | [2M] |
| 8. | If , find | [2M] |
| 9. | Evaluate | [2M] |
| 10. | If , find | [2M] |

**Part – B Max.Marks:50**

**ANSWER ANY FIVE QUESTIONS. EACH QUESTION CARRIES 10 MARKS.**

|  |  |  |  |
| --- | --- | --- | --- |
| 11. | a) | Show that | [5M] |
|  | b) | Show that | [5M] |
|  |  |  |  |
| 12. | a) | Find the equation of the circle which passes through  and has centre | [5M] |
|  | b) | Find the equation of the parabola whose focus is and directrix is | [5M] |
|  |  |  |  |
| 13. | a) | Evaluate | [5M] |
|  | b) | Prove that is discontinuous at | [5M] |
|  |  |  |  |
| 14. | a) | If , find | [5M] |
|  | b) | A particle is moving along a straight line according to the law  find the initial velocity | [5M] |
|  |  |  |  |
| 15. | a) | Verify Euler’s theorem for | [5M] |
|  | b) | Determine maxima and minima of | [5M] |
|  |  |  |  |
| 16. | a) | Evaluate | [5M] |
|  | b) | Evaluate | [5M] |
|  |  |  |  |
| 17. | a) | Express  in the form of | [5M] |
|  | b) | Evaluate | [5M] |
|  |  |  |  |
| 18. | a) | Find the area of the region bounded by the parabola  and the line | [5M] |
|  | b) | Find the points on the curve so that the tangents at which pass through the origin | [5M] |

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