Question Bank 2

School of Basics and Applied Science

**Mathematics**

Course Name: Multivariable Calculus s Course Code: BBS01T1001

| Sl No. | Questions | CO | Bloom’s Taxonomy Level | Difficulty Level | Competitive Exam Question Y/N | Area | Topic | Unit | Marks |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | State Rolle’s theorem. | 2 | K1 | M | N | Application of derivatives | Rolle’s theorem | 2 | 2 |
| 2 | Describe the geometrical interpretation of Rolle’s theorem. | 2 | K2 | M | N | Application of derivatives | Rolle’s theorem | 2 | 2 |
| 3 | Apply Rolle’s theorem to find the value of for the function in the interval. | 2 | K3 | M | N | Application of derivatives | Rolle’s theorem | 2 | 6 |
| 4 | Apply Rolle’s theorem to find the value of for the function in the interval. | 2 | K3 | M | N | Application of derivatives | Rolle’s theorem | 2 | 6 |
| 5 | Apply Rolle’s theorem to find the value of for the function in the interval. | 2 | K3 | M | N | Application of derivatives | Rolle’s theorem | 2 | 2 |
| 6 | State the Mean value theorem. | 2 | K1 | H | N | Application of derivatives | Mean value theorem | 2 | 2 |
| 7 | Describe the geometrical interpretation of Mean value theorem. | 2 | K2 | M | N | Application of derivatives | Mean value theorem | 2 | 2 |
| 8 | Describe the physical interpretation of Mean value theorem. | 2 | K2 | M | N | Application of derivatives | Mean value theorem | 2 | 2 |
| 9 | Apply Mean value theorem to find the value of for the function in the interval. | 2 | K3 | M | N | Application of derivatives | Mean value theorem | 2 | 6 |
| 10 | Apply Mean value theorem to find the value of for the function in the interval. | 2 | K3 | M | N | Application of derivatives | Mean value theorem | 2 | 6 |
| 11 | Apply Mean value theorem to find the value of for the function in the interval. | 2 | K3 | M | N | Application of derivatives | Mean value theorem | 2 | 2 |
| 12 | State l’Hopital’s rule. | 2 | K1 | H | N | Indeterminate form | l’Hopital’ rule | 2 | 2 |
| 13 | Compute: | 2 | K3 | M | N | Indeterminate form | l’Hopital’ rule | 2 | 2 |
| 14 | Compute: | 2 | K3 | M | N | Indeterminate form | l’Hopital’ rule | 2 | 2 |
| 15 | Compute: | 2 | K3 | M | N | Indeterminate form | l’Hopital’ rule | 2 | 6 |
| 16 | Compute: | 2 | K3 | M | N | Indeterminate form | l’Hopital’ rule | 2 | 6 |
| 17 | Compute: | 2 | K3 | M | N | Indeterminate form | l’Hopital’ rule | 2 | 6 |
| 18 | Compute: | 2 | K3 | M | N | Indeterminate form | l’Hopital’ rule | 2 | 6 |
| 19 | Compute: | 2 | K3 | M | N | Indeterminate form | l’Hopital’ rule | 2 | 6 |
| 20 | Compute: | 2 | K3 | M | N | Indeterminate form | l’Hopital’ rule | 2 | 6 |
| 21 | Compute: | 2 | K3 | M | N | Indeterminate form | l’Hopital’ rule | 2 | 6 |
| 22 | Compute: | 2 | K3 | M | N | Indeterminate form | l’Hopital’ rule | 2 | 6 |
| 23 | Define Improper integral and give examples. | 3 | K1 | M | N | Improper integral | Improper integral | 2 | 2 |
| 24 | Identify whether the integral is improper and if improper then write its type. | 3 | K2 | M | N | Improper integral | Types | 2 | 2 |
| 25 | Identify whether the integral is improper and if improper then write its type. | 3 | K2 | M | N | Improper integral | Types | 2 | 2 |
| 26 | Identify whether the integral is improper and if improper then write its type. | 3 | K2 | M | N | Improper integral | Types | 2 | 2 |
| 27 | Identify whether the integral is improper and if improper then write its type. | 3 | K2 | M | N | Improper integral | Types | 2 | 2 |
| 28 | Compute: | 3 | K3 | M | N | Improper integral | Type I | 2 | 6 |
| 29 | Compute: | 3 | K3 | H | N | Improper integral | Type I | 2 | 6 |
| 30 | Compute: | 3 | K3 | H | N | Improper integral | Type II | 2 | 6 |
| 31 | Compute: | 3 | K3 | H | N | Improper integral | Type II | 2 | 6 |
| 32 | Compute: | 3 | K3 | M | N | Improper integral | Type I | 2 | 6 |
| 33 | Compute: | 3 | K3 | H | N | Improper integral | Type II | 2 | 6 |
| 34 | Calculate the value of for which the integral is convergent. When the integral does converge, what is its value? | 3 | K4 | H | N | Improper integral | Type I | 2 | 10 |
| 35 | Define Gamma function. | 3 | K1 | M | N | Special functions | Gamma function | 2 | 2 |
| 36 | Find by using the definition of Gamma function. | 3 | K2 | M | N | Special functions | Gamma function | 2 | 2 |
| 37 | Show that and hence verify. | 3 | K3 | M | N | Special functions | Gamma function | 2 | 6 |
| 38 | Compute | 3 | K3 | H | N | Special functions | Gamma function | 2 | 2 |
| 39 | Compute | 3 | K3 | H | N | Special functions | Gamma function | 2 | 6 |
| 40 | Compute | 3 | K3 | H | N | Special functions | Gamma function | 2 | 6 |
| 41 | Compute | 3 | K3 | H | N | Special functions | Gamma function | 2 | 6 |
| 42 | Compute | 3 | K3 | H | N | Special functions | Gamma function | 2 | 6 |
| 43 | Evaluate using the Gamma function. | 3 | K4 | H | N | Special functions | Gamma function | 2 | 10 |
| 44 | Define Beta function. | 3 | K1 | M | N | Special functions | Beta function | 2 | 2 |
| 45 | Verify | 3 | K2 | H | N | Special functions | Beta function | 2 | 2 |
| 46 | Compute | 3 | K3 | H | N | Special functions | Beta function | 2 | 6 |
| 47 | Compute | 3 | K3 | H | N | Special functions | Beta function | 2 | 6 |
| 48 | Compute | 3 | K3 | H | N | Special functions | Beta function | 2 | 6 |
| 49 | Show | 3 | K4 | H | N | Special functions | Beta function | 2 | 6 |
| 50 | Find the evolutes of the curve. | 2 | K4 | H | N | Evolute & Involute | Evolute & Involute | 2 | 10 |
| 51 | Find the evolutes of the curve. | 2 | K4 | H | N | Evolute & Involute | Evolute & Involute | 2 | 10 |
| 52 | Find the evolutes of the curve. | 2 | K4 | H | N | Evolute & Involute | Evolute & Involute | 2 | 10 |
| 53 | Show that the curve, , is the involute of the curve , . | 2 | K4 | H | N | Evolute & Involute | Evolute & Involute | 2 | 10 |
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Signature of Course Coordinator/DC:

Signature of Dean:

IQAC: