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Total No. of Pages : 02

Total No. of Questions : 09

B.Sc.(Agriculture) (2014 & Onwards) (Sem.-2)

MATHEMATICS – II

Subject Code : BSAG-205A

M.Code : 72360

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A
Q1. Write briefly :

- a) Define Horizontal asymptotes.
- b) Find : $\lim_{n \rightarrow \infty} \frac{2n+1}{3n+1}$
- c) Find the first derivative of $(5x+2)(4x+3)$.
- d) Define continuity.
- e) Discuss the continuity of sine function.
- f) Define Improper fraction.
- g) Integrate $\tan x$ w.r.t. x
- h) Evaluate : $\int x \sin x \, dx$
- i) Evaluate : $\int x \cos 2x \, dx$.
- j) Evaluate : $\int (x^2 + x) \, dx$.

SECTION-B

- Q2. Prove that the greatest integer function $[x]$ is not differentiable at $x = 1$.
- Q3. Give the Geometrical interpretation of the derivative.
- Q4. Find the derivative of $\log[(x+2)(x^2+x)]$ w.r.t. x .
- Q5. Evaluate : $\int e^x \cos x \, dx$.
- Q6. If $f'(x) = x^4 + x^2 + 9$, then find $f(x)$.

SECTION-C

- Q7. If $y = a \sin(\log x) + b \cos(\log x)$, then prove that $x^2 \frac{d^2 y}{dx^2} + x \frac{dy}{dx} + y = 0$.
- Q8. Water is dripping out of the conical funnel, at the uniform rate of 2cc/sec through a tiny hole at the vertex of the funnel. When the slant height of water is 5cm, find the rate of decrease of the slant height of the water.
- Q9. Integrate by the method of partial fraction $\int \frac{2x-1}{x^2-x-6} dx$.

NOTE : Disclosure of identity by writing mobile number or making passing request on any page of Answer sheet will lead to UMC case against the Student.