

American International University-Bangladesh

**Faculty of Science & Information Technology**

**Department of Mathematics**

**MAT1205: Integral Calculus and Ordinary Differential Equations (Sections: All)**

Midterm Examination Fall 2017-2018

Total Marks: 40 Time: 2 hours

Course coordinator: Professor Dr. Madhabi Islam and Ayesha Siddiqua.

**1.** Answer the following (short questions): **[1×10=10]**

**(a)**, **(b)**, **(c)** find,

**(d)** **(e)** **(f)**

**(g)** **(h) (i)**,

**(j)** find.

**2.** Answer any **ONE** of the following: **[1×5=5]**

**(a)** For the given integralwith, where *n* is the subintervals, estimate the value of the

integral using **Trapezoidal rule**.

**(b)** Find the **left Riemann sum** for with , where is the of subintervals.

**3.** Answer any **ONE** of the following: **[1×5=5]**

1. Sketch the region bounded by the curveand theaxis. Also find its area.
2. Sketch the region bounded by the curve . Also find the area of the region.

**4.** Evaluate any **THREE** of the following integrals: **[3×4=12]**

**(a)**, **(b)**, **(c)**,

**(d)**, **(e)** .

**5.** Evaluate any **TWO** of the following integrals: **[2×4=8]**

1. ,**(b)**,**(c)**.