**NATIONAL OPEN UNIVERSITY OF NIGERIA**

**14/16 AHMADU BELLO WAY, VICTORIA ISLAND, LAGOS**

**SCHOOL OF SCIENCE AND TECHNOLOGY**

**JUNE/JULY EXAMINATION**

**COURSE CODE: MTH381**

**COURSE TITLE: MATHEMATICAL METHOD III(3 units)**

**TIME ALLOWED:3 HOURS**

**INSTRUCTION: ANSWERS ANY 4 QUESTIONS**

1. (a) Evaluate the integral **4marks**

(b) Evaluate the integeral **7 marks**

(c) Show that the functions**** and are linearly independent on any interval**6½ marks**

2. (a) Evaluate the surface integral  where is the surface bounded

by ,. **10 marks**

(b) Evaluate  from A(0,1) to B(2,5) along the curve **7½ marks**

3. (a) state Green’s theorem on the boundary C of a region R in the  plane **7½ marks**

(b) Evaluate the line integral  round the region bounded by the curve

 and  by the use of Green’s theorem. **10 marks**

4. (a) State Stoke’s theorem and express it in rectangular form **7½ marks**

(b) Evaluate the integral **10 marks**

5. (a) Evaluate the periodic function **7½ marks**

(b) Find the Fourier coefficients of the periodic function  where 

and **10 marks**

6. (a) Find the laplace transform of **7½ marks**

(b) Determine **10 marks**