ELIZADE UNIVERSITY
ILARA-MOKIN
ONDO STATE

FACULTY: Basic and Applied Sciences
DEPARTMENT: Physical and Chemical Sciences
SECOND SEMESTER EXAMINATIONS
2015/2016 ACADEMIC SESSION

COURSE CODE: AGP 206
COURSE TITLE: INTRODUCTORY GEOMATHEMATICS
DURATION: 2 Hours, 30 Minutes

mrseeli

HOD's SIGNATURE

TOTAL MARKS: 60 MARKS

Matriculation Number: _____

INSTRUCTIONS:

1. Write your matriculation number in the space provided above and also on the cover page of the exam booklet.
2. This question paper consists of 1 sheet with printing on both sides.
3. Answer all questions in the exam booklet provided.
4. More marks are awarded for problem solving method used to solving problems than for the final numerical answer.
5. Box your final answers. Marks will be deducted for untidy work.
6. At the end of this examination, place the question paper inside the exam booklet.
7. Attempt any three (3) of the five (5) questions.

ELIZADE UNIVERSITY
FACULTY OF BASIC AND APPLIED SCIENCES
DEPARTMENT: PHYSICAL AND CHEMICAL SCIENCES
PROGRAMME: APPLIED GEOPHYSICS EXAM TITLE: DEGREE EXAMINATION
COURSE CODE & TITLE: AGP 206 – Introductory Geomathematics
TIME ALLOWED: 2 Hours, 30 Minutes SEMESTER/SESSION: 2nd / 2015/2016
INSTRUCTIONS: Answer any three questions

1. (a) Given that $f(x) = 5x^2 + x - 7$ determine
(i) $f(2) \div f(1)$ (ii) $f(3+a)$ (iii) $f(3+a) - f(3)$ (iv) $\frac{f(3+a) - f(3)}{a}$

(b) Consider the matrix A = $\begin{bmatrix} 3 & 4 & -1 \\ 2 & 0 & 7 \\ 1 & -3 & -2 \end{bmatrix}$

Evaluate |A| by using (i) the third column expansion (ii) the second row expansion
(20 marks)

2. (a) Distinguish between even function and odd function. Give at least one example of each.

(b) Differentiate from first principle $y = x^2$ and determine the value of the gradient of the curve at x=2.
(20 marks)

3. A force of 4N is inclined at an angle of 45° to a second force of 7N, both forces acting at a point.

(a) Find the magnitude of the resultant of these two forces.

(b) Resolve the direction of the resultant with respect to the 7N force.

(20 marks)

4. (a) Solve within the given interval

$$\int_0^{\pi/2} 3\sin 2x \, dx$$

(b) If $A = \begin{bmatrix} -5 & 0 \\ 7 & -4 \end{bmatrix}$ $B = \begin{bmatrix} 2 & -1 \\ -7 & 4 \end{bmatrix}$ and $C = \begin{bmatrix} 1 & 0 \\ -2 & -6 \end{bmatrix}$

Find $2A - 3B + 4C$

(20 marks)

5. The relationship between the voltage applied to a resistively metre electrical circuit and its current flow is as shown

Current (mA)	2	4	6	8	10	12	14
Applied Voltage (V)	5	11	15	19	24	28	33

(a) Determine the equation of the regression line of applied voltage on current.
(b) Find the voltage corresponding to a current of 0.009A. Give answer to 4 significant figures.

(20 marks)