PENINSULA COLLEGE GEORGETOWN

FINAL SEMESTER EXAMINATION

Programme	:	**FOUNDATION IN ART**
Course	:	**MATHEMATICS**
Course Code	:	**FA1134**
Duration	:	**3 HOURS**

INSTRUCTIONS TO CANDIDATES:

1. Please read the instructions given in the question paper **CAREFULLY.**
2. This question paper consists of **FOUR (4)** questions
3. Answer **ALL** questions in the question paper.
4. Answers to the questions are to be written into the examination booklet.
5. Electronic dictionaries, lecture notes, files or any unauthorised materials except writing equipment are strictly prohibited.

This question paper must be submitted along with all used and/or unused rough papers and/ or graph papers (if any). Candidates are **NOT ALLOWED** to take any examination paper(s) used or unused out of the examination hall.

WARNING:
The Examination Board of Peninsula College Georgetown regards cheating as a very serious offence and will not hesitate to mete out the appropriate punitive actions according to the severity of the offence committed, and in the accordance with the clauses stipulated in the Students' Handbook, up to and including expulsion from Peninsula College Georgetown.

(*This booklet contains 3 printed pages including this page*)

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE ALLOWED TO DO SO

For examiner's use only

QUESTION NO.	MARKS
1	/ 25
2	/ 25
3	/ 25
4	/ 25
Total	**/ 100**

Answer **ALL** questions on the separate sheet provided. **[100 marks]**

1. a) Solve the following simultaneous equations by using the matrix method.

$$5x = 3 - 9y$$
$$4x = 7 - 2y$$

(10 marks)

b) A hawker sells nasi lemak and mee goreng. The numbers of food sold during 2 days are shown in the table below. The income received from the sale on that day 1 and day 2 was RM214 and RM256.00 respectively. If the price of nasi goreng is RM *x* and the price of mee goreng is RM *y*, find the values of *x* and *y*.

FOOD	**Nasi Lemak**	**Mee Goreng**
Day 1	53	27
Day 2	62	33

(15 marks)
Total: [25 marks]

2. a) Given that $y = (3x^2 - 2)(2x^2 + 7)$, find $\frac{dy}{dx}$ (6 marks)

b) Find the gradient of the tangent to the curve $y = 5x^3 + 9x^2 - 3x - 2$ at the point (-2,0)

(6 marks)

c) Given $f(x) = \frac{5x^2+2}{3x-3}$, find $f'(x)$ (7 marks)

d) Given that $y = 5(2x - 7)^6$, find $\frac{dy}{dx}$ (6 marks)
Total: [25 marks]

3. a) Find the indefinite integral for each of the following.
$\int \frac{(x+2x^3)}{x^5} dx$ (5 marks)

b) Find the indefinite integral for each of the following using substitution method.

i. $\int 5(2x + 4)^7 dx$ (5 marks)

ii. $\int \frac{3}{(6x+1)^3} dx$ (5 marks)

c) Sketch the region bounded by $y = 2x^2 + x + 3$. $x = -2$, $x = 3$ and the $x - axis$, and find the area of the region. (10 marks)

Total: [25 marks]

4. a) The following frequency distribution Table 4(a) shows the time spent on smartphones in a day by 50 students in a class.

Table 4(a): Time Spent on Smartphones

Time Spent (min)	1-30	31-60	61-90	91-120	121-150	151-180
Number of Students	1	5	12	18	10	4

Calculate the mean time spent by the students. (5 marks)

b) The following Table 4(b) shows the marks obtained by students within a college for their English subjects.

Table 4(b): Marks for English Subject

Marks	Number of Students, f
0-20	8
21-40	15
41-60	50
61-80	20
81-100	12

Find the standard deviation of the marks scored. (8 marks)

c) A packet of chocolate contains 4 black chocolate and 6 white chocolate. A chocolate is chosen at random from the package and being eaten by you. And the package is passed to your friend and he took randomly form the package and eat it.

i. Draw a tree diagram for the situation above. (3 marks)

ii. Determine the probability that both the chocolate eaten are black. (3 marks)

iii. Determine the probability the two chocolate are of different colours. (3 marks)

iv. Determine the probability at least one of the chocolate eaten is white. (3 marks)

Total: [25 marks]

- END OF QUESTIONS -