PERSIDANGAN KEBANGSAAN PENGETUA
SEKOLAH MENENGAH MALAYSIA
CAWANGAN TERENGGANU

DENGAN KERJASAMA

JABATAN PELAJARAN TERENGGANU

PEPERIKSAAN AKHIR TAHUN 2007
TINGKATAN 4

ADDITIONAL MATHEMATICS

PAPER 1

MARKING SCHEME

This marking scheme consists of 6 printed pages.

INSTRUCTIONS FOR EXAMINERS

1. MARKING GUIDE

1.1 Mark all the answers.

1.2 Do not mark working / answer that has been cancelled.

1.3 Answer written in the answer space or at the end of the working is considered the final answer.

1.4 Full mark is given for the correct answer without referring to the working.

1.5 If the final answer is wrong, award the corresponding maximum mark as stated in the marking scheme.

1.6 If more then one final answer is given, choose the answer with the highest mark unless stated otherwise in the marking scheme.

1.7 If the final answer is correct, but stated wrongly in the answer space, full mark is not awarded.

2. NOTATION

2.1 Full mark for each question in this paper is either 2, 3 or 4.

2.2 If full mark is not awarded, the following system is used :

B3 – 3 marks is awarded if the answer at this stage is correct.

B2 – 2 marks is awarded if the answer at this stage is correct.

B1 – 1 mark is awarded if the answer at this stage is correct.

2.3 Only one out of B3, B2 or B1 is awarded for each question or part of a question.

3. Accept answers correct to 4 significant figures unless stated otherwise in the marking scheme.

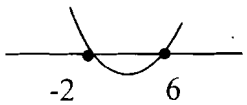
4. Accept other correct methods which are not given in the marking scheme.

5. Accept answers in Bahasa Melayu.

6. Calculating total marks.

$$\frac{\sum \text{Marks from Paper 1} + \sum \text{Marks from Paper 2}}{180} \times 100\%$$

[See next page

Q	Marking Procedure	Marks	Full Marks
1	a) 0ne to many relation b) $f: x \rightarrow \sqrt{x}$ or $f(x) = \sqrt{x}$	1 1	2
2	- 2 $k - 3(-k) = -8$	2 B1	2
3	$1 - 2x$ $4(\frac{3-x}{2}) - 5$ $f^{-1}(x) = \frac{3-x}{2}$	4 B3 B2	4
4	3.581 and 0.4189 $\frac{-(-8) \pm \sqrt{(-8)^2 - 4(2)(3)}}{2(2)}$ $2x^2 - 8x + 3 = 0$	4 B2 B1	4
5	$3x^2 - 5x - 2 = 0$ $(x - 2)(3x + 1) = 0$ or $x^2 - (2 - \frac{1}{3})x + (2)(-\frac{1}{3}) = 0$ SOR = $(2) + (-\frac{1}{3})$ and POR = $(2)(-\frac{1}{3})$	3 B2 B1	3
6	17 or – 7 $(k - 5)^2 - 4(4)(9) = 0$ $4x^2 + (k - 5)x + 9 = 0$ $a = 4 \quad b = k - 5 \quad c = 9$	4 B3 B2 B1	4
7	$x < -2, \; x > 6$  $(x + 2)(x - 6) > 0$	3 B2 B1	3
8	(a) $p = -1$ (b) $q = 5$ (c) $x = 1$	1 1 1	3

Q	Marking Procedure	Marks	Full Marks
9	$2(x - 3)^2 - 7$ $2[(x - 3)^2 - ?]$ $2 [x^2 - 6x] + 11$ or $2 [x^2 - 6x + \frac{11}{2}]$	3 B2 B1	3
10	1 $8 - 4x = 4x$ $3^{4(2-x)} = 3^{4x}$	3 B2 B1	3
11	$\frac{1}{2}$ $\log_2 4(3x - 1) = \log_2 4x$ $2 = \log_2 4$	3 B2 B1	3
12	$2q + 1 - 2p$ $2 \log_a 5 + \log_a a - 2\log_a 3$ $\log_a 5^2$ dan $\log_a 3^2$ $\log_a 5^2$ atau $\log_a 3^2$	4 B3 B2 B1	4
13	$4y = - x - 5$ $y + 2 = - ¼ (x - 3)$ mid point (3 , - 2) and $m_2 = - ¼$ $m_1 = 4$ or $m_2 = - ¼$	4 B3 B2 B1	4
14	$3x^2 + 3y^2 + 4x + 32y - 12 = 0$ $2\sqrt{(x-1)^2 + (y+3)^2} = \sqrt{(x-6)^2 + (y-4)^2}$ $\sqrt{(x-1)^2 + (y+3)^2}$ or $\sqrt{(x-6)^2 + (y-4)^2}$	3 B2 B1	3

Q	Marking Procedure	Marks	Full Marks
15	$\frac{1}{2}$ $k+2=4-3k$ gradient $=k+2$ and $4-3k$ gradient $=k+2$ or $4-3k$	4 B3 B2 B1	4
16	$4y=-3x+16$ B(0 , 4) and $m_2=-\frac{3}{4}$ or $y-4=-\frac{3}{4}x$ B(0 , 4) or $m_1=\frac{4}{3}$	3 B2 B1	3
17	(a) 10 (b) 15 (c) 13	1 1 1	3
18	14 $\delta^2=\frac{150}{3}-6^2$ Mean, $\bar{x}=6$ or $\sum x^2=150$	3 B2 B1	3
19	7 cm $20.11=2r+r(0.8728)$ $50^0=0.8728$ rad	3 B2 B1	3
20	30 $\frac{1}{2}(5)^2(\frac{12}{5})$ $\theta=\frac{12}{5}$ rad $12=5\theta$	4 B3 B2 B1	4

Q	Marking Procedure	Marks	Full Marks
21	a) $4 - 15x^4$	1	2
	(b) $-60(2-4x)^4$ or $15(2-4x)^4(-4)$	1	
22	$\frac{dy}{dx} = -12(7-5x)^5$	4	4
	$\frac{dy}{dx} = \frac{12}{5}u^5 \times -5$ @ $\frac{dy}{dx} = \frac{12}{5}(7-5x)^5(-5)$	B3	
	$\frac{dy}{du} = \frac{12}{5}u^5$ and $\frac{du}{dx} = -5$ @ $\frac{dy}{dx} = \frac{12}{5}(7-5x)^5$	B2	
	$\frac{dy}{du} = \frac{12}{5}u^5$ or $\frac{du}{dx} = -5$ @ $y = \frac{2}{5}(7-5x)^6$	B1	
23	$\frac{12}{(4-2x)^2}$	3	3
	$\frac{(4-2x)(3)-(3x)(-2)}{(4-2x)^2}$	B2	
	$(4-2x)(3)$ or $(3x)(-2)$	B1	
24	(a) 1	1	3
	(b) 6	2	
	$\lim_{x\to 3}\left(\frac{(x+3)(x-3)}{x-3}\right)$ or $\lim_{x\to 3}(x+3)$	1	
25	$y = 3x - 1$	3	3
	$m = 3$ or $y - 2 = 3(x-1)$	B2	
	$\frac{dy}{dx} = 4x - 1$	B1	