Penyelesaian Lengkap

Kertas 1

1 Jawapan/*Answer*: **B**

2 Jawapan/*Answer*: **A**

3

Dadu pertama *First dice*	Dadu kedua *Second dice*					
	1	**2**	**3**	**4**	**5**	**6**
1						
2		✗	✓		✓	
3		✓	✗		✓	
4						
5		✓	✓		✗	
6						

{(2, 3), (2, 5), (3, 2), (3, 5), (5, 2), (5, 3)}

Jawapan/*Answer*: **D**

4 P(mendapat gambar/*getting a head*) $= \dfrac{1}{2}$

P(mendapat nombor genap/*getting an even number*)
$= \dfrac{3}{6} = \dfrac{1}{2}$

P(mendapat gambar dan nombor genap/*getting a head and an even number*) $= \dfrac{1}{2} \times \dfrac{1}{2}$

$\qquad\qquad\qquad = \dfrac{1}{4}$

Jawapan/*Answer*: **C**

5 Katakan B = peristiwa memperoleh sebiji bola biru dan K = peristiwa memperoleh sebiji bola kuning
Let B = event of getting a blue ball and K = event of getting a yellow ball

$P(BB) + P(KK) = \left(\dfrac{3}{8} \times \dfrac{2}{7}\right) + \left(\dfrac{5}{8} \times \dfrac{4}{7}\right)$

$\qquad\qquad\quad = \dfrac{3 + 10}{28}$

$\qquad\qquad\quad = \dfrac{13}{28}$

Jawapan/*Answer*: **D**

6 Katakan N = peristiwa mendapat nombor perdana dan V = peristiwa mendapat huruf vokal
Let N = event of getting a prime number and V = event of getting a vowel

$P(NV) = \dfrac{2}{6} \times \dfrac{1}{4}$

$\qquad\quad = \dfrac{1}{12}$

Jawapan/*Answer*: **A**

7 Katakan E = peristiwa mendapat nombor genap, K = peristiwa mendapat huruf konsonan
Let E = event of getting an even number, K = event of getting a consonant

$P(EK) = \dfrac{3}{6} \times \dfrac{3}{4}$

$\qquad\quad = \dfrac{3}{8}$

Jawapan/*Answer*: **C**

8

P \ Q	1	3	5	7	9
0	1	3	5	7	9
2	1	1	3	5	7
4	3	1	1	3	5
6	5	3	1	1	3
8	7	5	3	1	1

L = Peristiwa memperoleh dua nombor yang beza nilainya lebih daripada 5
Event of getting two numbers with difference is more than 5

$n(S) = 25$
$n(L) = 4$
$P(L) = \dfrac{4}{25}$

Jawapan/*Answer*: **A**

9 $S = \{1, 2, 3, 4, 5, 6\}$

X = Peristiwa mendapat 5 atau nombor lebih daripada 3
Event of getting 5 or a number more than 3
$= \{4, 5, 6\}$

$P(X) = \dfrac{3}{6} = \dfrac{1}{2}$

Jawapan/*Answer*: **D**

10 Katakan A = Peristiwa mendapat nombor ganjil, B = Peristiwa mendapat nombor gandaan 3
Let A = Event of getting an odd number, B = Event of getting a multiple of 3
$A = \{11, 13, 15, 17, 19\}$, $B = \{12, 15, 18\}$
$P(A \cup B) = P(A) + P(B) - P(A \cap B)$

$\qquad\qquad = \dfrac{5}{10} + \dfrac{3}{10} - \dfrac{1}{10}$

$\qquad\qquad = \dfrac{7}{10}$

Jawapan/*Answer*: **A**

11 Katakan B = Peristiwa mendapat kad biru, M = Peristiwa mendapat kad merah.
Let B = Event of getting a blue card, M = Event of getting a red card.
$P(B \cup M) = P(B) + P(M)$
$= \dfrac{6}{18} + \dfrac{7}{18}$
$= \dfrac{13}{18}$

Jawapan/*Answer*: **B**

12 Katakan B = Peristiwa memilih seorang murid yang gemar warna biru,
M = Peristiwa memilih seorang murid yang gemar warna merah.
Let B = Event of choosing a student who likes blue, M = Event of choosing a student who likes red.
$P(B \cup M) = P(B) + P(M) - P(B \cap M)$
$= \dfrac{26}{40} + \dfrac{18}{40} - \dfrac{11}{40}$
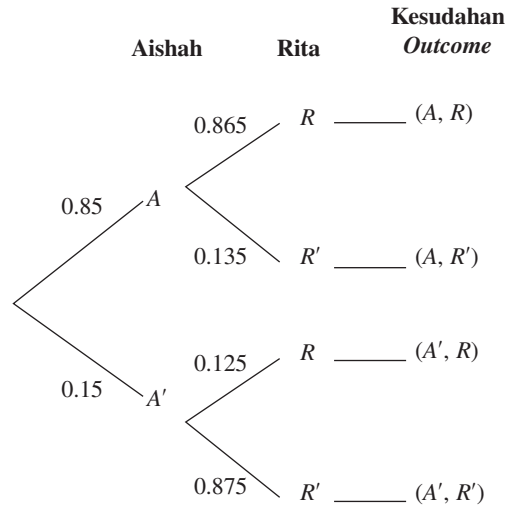$= \dfrac{33}{40}$

Jawapan/*Answer*: **D**

13 P(Zac menyertai kedua-dua kelab)
P(*Zac joins both clubs*)
$= \dfrac{3}{10} \times \dfrac{4}{5}$
$= \dfrac{6}{25}$

P(Zac menyertai kelab ping pong atau kelab bola keranjang)
P(*Zac joins table tennis club or basketball club*)
$= \dfrac{3}{10} + \dfrac{4}{5} - \dfrac{6}{25}$
$= \dfrac{43}{50}$

Jawapan/*Answer*: **C**

14 Katakan E = peristiwa memilih sebiji epal yang elok
Let E = Event of choosing a good apple
P(sekurang-kurangnya sebiji epal adalah elok/ *at least an apple is good*)
$= P(EE) + P(EE') + P(E'E)$
$= \left(\dfrac{28}{30} \times \dfrac{27}{29}\right) + \left(\dfrac{28}{30} \times \dfrac{2}{29}\right) + \left(\dfrac{2}{30} \times \dfrac{28}{29}\right)$
$= \dfrac{434}{435}$

Atau/*Or* $1 - P(E'E')$
$= 1 - \left(\dfrac{2}{30} \times \dfrac{1}{29}\right)$
$= \dfrac{434}{435}$

Jawapan/*Answer*: **C**

15

| | Aishah | Rita | **Kesudahan** *Outcome* |

A = Peristiwa Aishah menyertai rombongan lawatan sekolah
Event of Aishah joining the school's field trip
A' = Peristiwa Aishah tidak menyertai rombongan lawatan sekolah
Event of Aishah not joining the school's field trip
R = Peristiwa Rita menyertai rombongan lawatan sekolah
Event of Rita joining the school's field trip
R' = Peristiwa Rita tidak menyertai rombongan lawatan sekolah
Event of Rita not joining the school's field trip

P(Seorang daripada mereka menyertai rombongan lawatan sekolah)
P(*One of them joining the school field trip*)
$= P(A, R') + P(A', R)$
$= (0.85 \times 0.135) + (0.15 \times 0.125)$
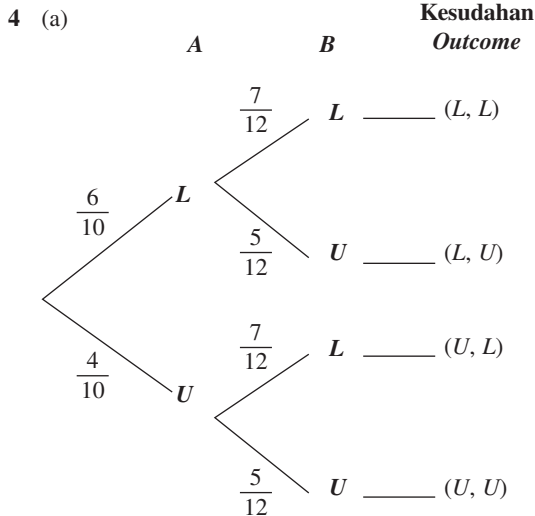$= 0.1335$

Jawapan/*Answer*: **D**

Kertas 2

Bahagian A

1 (a) Peristiwa bersandar/*Dependent event*
(b) $P(HH) = \dfrac{3}{5} \times \dfrac{2}{4}$
$= \dfrac{3}{10}$

2 (a) Peristiwa tak bersandar. Kebarangkalian peristiwa pertama tidak mempengaruhi kebarangkalian peristiwa kedua.
An independent event. The probability of the first event does not affect the probability of the second event.
(b) S = {$(C, 3), (C, 6), (C, 9), (A, 3), (A, 6), (A, 9),$ $(R, 3), (R, 6), (R, 9), (I, 3), (I, 6), (I, 9)$}

3 (a) $\{(A, O), (A, E), (E, O), (E, E)\}$

(b) $P(EE) + P(SS) = \left(\dfrac{1}{5} \times \dfrac{1}{5}\right) + \left(\dfrac{1}{5} \times \dfrac{1}{5}\right)$

$$= \dfrac{2}{25}$$

Bahagian B

4 (a)

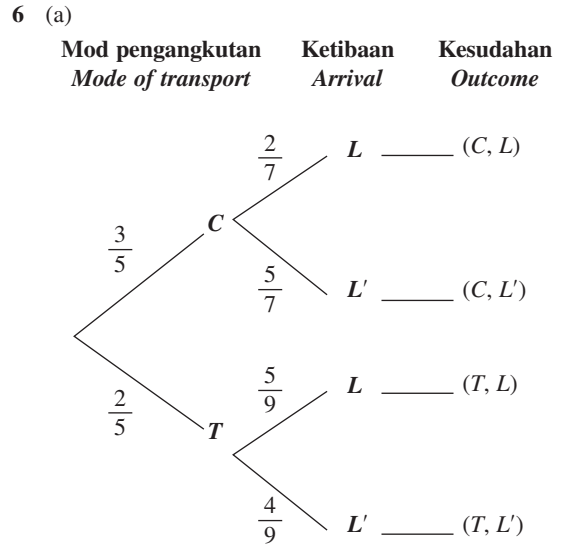|	A	B	Kesudahan *Outcome*

L = Peristiwa pemain dari tingkatan menengah bawah
Event of player from lower form
U = Peristiwa pemain dari tingkatan menengah atas
Event of player from upper form

(b) $P(L, L) + P(U, U) = \left(\dfrac{6}{10} \times \dfrac{7}{12}\right) + \left(\dfrac{4}{10} \times \dfrac{5}{12}\right)$

$$= \dfrac{7}{20} + \dfrac{1}{6}$$

$$= \dfrac{31}{60}$$

(c) Peristiwa tak bersandar. Kebarangkalian peristiwa pertama tidak mempengaruhi kebarangkalian peristiwa kedua.
An independent event. The probability of the first event does not affect the probability of the second event.

5 (a)
$$\dfrac{p}{20 + p} \times \dfrac{p - 1}{19 + p} = \dfrac{3}{29}$$

$$\dfrac{p^2 - p}{380 + 39p + p^2} = \dfrac{3}{29}$$

$$29p^2 - 29p = 1140 + 117p + 3p^2$$

$$26p^2 - 146p - 1140 = 0$$

$$13p^2 - 73p - 570 = 0$$

$$(13p + 57)(p - 10) = 0$$

$$p = -\dfrac{57}{13} \text{ (ditolak/}rejected\text{)}, p = 10$$

$n(S) = 3 + 5 + 10 + 8 + 4$

$\qquad = 30$

$P(00) = \dfrac{3}{30} \times \dfrac{2}{29}$

$\qquad\quad = \dfrac{1}{145}$

(b) P(sekurang-kurangnya 3 orang anak
   at least 3 *children*)

$$= \dfrac{(8 + 4)}{30} \times \dfrac{8 + 4 - 1}{29}$$

$$= \dfrac{12}{30} \times \dfrac{11}{29}$$

$$= \dfrac{22}{145}$$

6 (a)

Mod pengangkutan *Mode of transport*	Ketibaan *Arrival*	Kesudahan *Outcome*

C = Peristiwa memandu kereta ke pejabat
Event of driving to office
T = Peristiwa menaiki LRT ke pejabat
Event of taking LRT *to office*
L = Peristiwa lewat ke pejabat
Event of being late to office
L' = Peristiwa tidak lewat ke pejabat
Event of not being late to office

(b) (i) $P(C, L') = \dfrac{3}{5} \times \dfrac{5}{7}$

$$= \dfrac{3}{7}$$

(ii) $P(C, L) + P(T, L)$

$$= \left(\dfrac{3}{5} \times \dfrac{2}{7}\right) + \left(\dfrac{2}{5} \times \dfrac{5}{9}\right)$$

$$= \dfrac{124}{315}$$

Bahagian C

7 (a) $P(\text{Pen}) = \dfrac{2}{5}$

$$\dfrac{n(\text{Pen})}{n(S)} = \dfrac{2}{5}$$

$$\dfrac{200}{n(S)} = \dfrac{2}{5}$$

$$n(S) = 200 \times \dfrac{5}{2}$$

$$= 500$$

n(buku latihan/*exercise books*)
$$= 500 - 200$$
$$= 300$$
$$x + y = 300$$
$x = 5y$, maka $5y + y = 300$
$$6y = 300$$
$$y = 50$$
$$x = 300 - 50$$
$$= 250$$

(b) $\dfrac{120 + 80}{k} = 2$

$$k = \dfrac{200}{2}$$
$$= 100$$

Katakan A = peristiwa memilih seorang murid sesi petang yang membeli pen, $n(A) = x$
Let A = event of choosing one afternoon session student who bought the pen, n(A) = x

$P(AA) = \dfrac{1}{5}$

$\dfrac{x}{100} \times \dfrac{x-1}{99} = \dfrac{1}{5}$

$x^2 - x = \dfrac{1}{5} \times 100 \times 99$

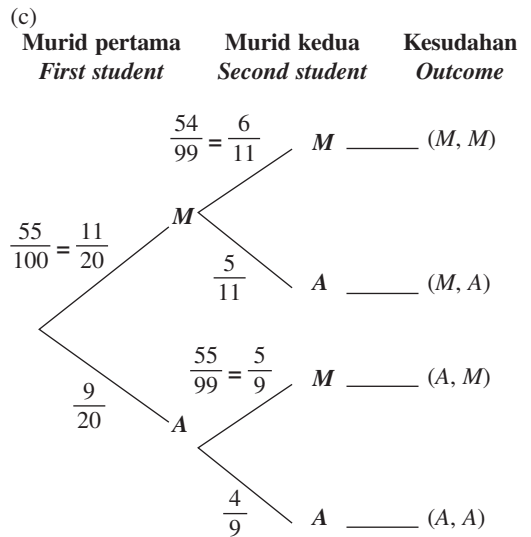$x^2 - x = 1\,980$
$x^2 - x - 1\,980 = 0$
$(x - 45)(x + 44) = 0$
$x = 45$ (bilangan murid tidak boleh bernilai negatif/ *the number of students cannot be negative*)

Bilangan murid sesi petang yang membeli pen = 45
Number of afternoon session students who bought the pen = 45

Bilangan murid sesi pagi yang membeli pen
Number of morning session students who bought the pen
$$= 100 - 45$$
$$= 55$$

(c)

Murid pertama	Murid kedua	Kesudahan
First student	*Second student*	*Outcome*

M = Peristiwa memilih murid sesi pagi
    Event of choosing morning session student
A = Peristiwa memilih murid sesi petang
    Event of choosing afternoon session student