NAMA : **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

TINGKATAN : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**UJIAN 2**

**MATEMATIK**

**TINGKATAN 4**

Satu jam dua puluh minit

 **JANGAN BUKA KERTAS SOALAN INI SEHINGGA DIBERITAHU**

1. *Kertas soalan ini adalah dalam dwibahasa.*
2. *Kertas soalan ini mengandungi dua bahagian:* **Bahagian A** *dan* **Bahagian B***. Jawab semua soalan di ruang yang disediakan. Bagi soalan graf, kertas graf tidak disediakan.*
3. *Rajah yang mengiringi soalan tidak dilukis mengikut skala kecuali dinyatakan.*
4. *Anda dibenarkan menggunakan kalkulator saintifik yang tidak boleh diprogramkan.*

Kertas soalan ini mengandungi 8 halaman bercetak.

**BAHAGIAN A**

1. Table 1, is a frequency table which shows the mass of fish cought by 20 fishermen,

*Jadual 1, ialah jadual kekerapan yang menunjukkan jisim tangkapan ikan oleh 20 orang nelayan.*

|  |  |
| --- | --- |
| Mass of fish caught (kg)*Jisin tangkapan ikan (kg)* | Frequency*Kekerapan* |
| 11-1314-1617-1920-2223-25 | 74225 |

Table 1/ *Jadual 1*

Calculate the mean mass, in kg, of fish caught by a fisherman.

*Hitungkan min jisim, dalam kg, tangkapan ikan bagi seorang nelayan.*

**A**  16.1 **C** 17.1

**B** 18.1 **D** 20.0

1. Table 2, is a cumulative frequency table which shows the scores obtained in a competition.

*Jadual 2 ialah jadual kekerapan longgokan yang menunjukkan skor yang diperoleh dalam suatu pertandingan.*

|  |  |
| --- | --- |
| Skor*Skor* | Cumulative frequency*Kekerapan longgokan* |
| 1 | *x* |
| 2 | 8 |
| 3 | 13 |
| 4 | 15 |
| 5 | 16 |

Table 2/ *Jadual 2*

If the mode of the scores is 1, state one possible value of *x.*

*Jika skor mod ialah 1, nyatakan satu nilai yang mungkin bagi x.*

**A**  2 **C** 4

**B** 5 **D** 7

1. In a group, 60 of the 180 students are male. A student is choosen at random from the group. Find the probability of choosing a female student.

*Dalam satu kumpulan, 60 daripda 180 pelajar ialah lelaki. Seorang pelajar dipilih secara rawak daripada kumpulan itu. Cari kebarangkalian memilih seorang pelajar perempuan.*

**A**  **C** 

**B**  **D** 

1. Diagram shows five cards in a box.

 *Rajah menunjukkan lima kad di dalam sebuah kotak.*

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| W | E | A | R | E | B | U | D | D | Y |

 A cards are picked at random from the box. State the probability that the card picked are labelled Y.

 *seeping kad dipilih secara rawak dipilih daripada kotak itu.*

 *Nyatakan kebarangkalian bahawa kad yang dipilih itu berlabel Y.*

**A**  **C** 

**B**  **D** 

1. It is given that set *G* is {2,3,5,6,7,8,9,13,14,15}. A number is chosen at random from the elements *G*. Find the probability that the number chosen is a prime number.

*Diberi bahawa set G ialah* {2,3,5,6,7,8,9,13,14,15}. *Satu nombor dipilih secara rawak darapida unsure-unsur set G. Cari kebarangkalian bahawa nobor yang dipilih itu ialah nombor perdana.*

**A**  0.6 **C** 0.4

**B** 0.5 **D** 0.7

1. In the Diagram 1, *TPS* is a tangent to the circle *PQR* at *P.*

*Dalam rajah 1, TPS ialah tangent kepada bulatan PQR di P.*

 

Diagram 1 / *Rajah 1*

The length of arc *PR* is equal to the length of arc *QR.* Find the value of *x.*

*Panjang lengkok PR adalah sama panjang dengan panjang lengkok QR. Carikan nilai x.*

**A** 22 **C** 44

**B** 34 **D** 68

1. In Diagram 2, *PAQ* and *QBR* are tangents to the circle with center *O*, at point *A* and *B* respectively.

*Dalam Rajah 2, PAQ dan QBR masing- masing ialah tangen kepada bulatan berpusat O di A dan B.*



Diagram 2 / *Rajah 2*

 Given that *AC* = *BC*, find the value of *x* **+** *y*.

 *Diberi AC = BC, cari nilai x* ***+*** *y.*

 **A** 19

 **B** 57

 **C** 104

 **D** 123

1. In the Diagram 3, *QRT* is a tangent to the circle centre *O* at *R. PUS, OPQ* and *OUR* are straight lines.

*Dalam Rajah 3, QRT ialah tangent kepada bulatan berpusat O, di R. PUS, OPQ dan OUR ialah garis lurus.*



Diagram 3 / *Rajah 3*

Find the value of *x.*

*Carikan nilai x.*

**A** 45 **C** 50

**B** 40 **D** 65

1. In the Diagram 4, *PQR* is a tangent to the circle centre *O* at *Q. PTOS* is a straight lines.

*Dalam Rajah 4, PQR ialah tangent kepada bulatan berpusat O, di Q. PTOS ialah garis lurus.*



Diagram 4 / *Rajah 4*

Find the value of *x.*

*Carikan nilai x.*

**A** 58 **C** 42

**B** 37 **D** 21

1. In the Diagram 5, *JKL* is a tangent to the circle centre *O* at *K. JNM* is a straight lines.

*Dalam Rajah 5, JKL ialah tangent kepada bulatan berpusat O, di K. JNM ialah garis lurus.*



Diagram 5 / *Rajah 5*

Find the value of *x.*

*Carikan nilai x.*

**A** 45 **C** 25

**B** 15 **D** 5

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**BAHAGIAN B**

1. Data below shows the mass, in kg, of fishes caught by 40 fishermen.

 *Data di bawah menunjukkan jisim, dalam kg, ikan yang ditangkap oleh 40 nelayan.*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 31 | 45 | 15 | 30 | 28 | 34 | 42 | 33 |
| 48 | 27 | 49 | 41 | 31 | 40 | 23 | 26 |
| 33 | 34 | 25 | 43 | 35 | 38 | 21 | 25 |
| 22 | 23 | 39 | 16 | 46 | 37 | 26 | 32 |
| 34 | 29 | 27 | 38 | 40 | 17 | 34 | 37 |

(a) Based on the data, complete Table 1 in the answer space.

 *Berdasarkan data tersebut, lengkapkan Jadual 1 dalam ruang jawapan.*

(b) Based on Table 1 in **1**(a), find the mean mass of the fished caught by a fisherman.

 *Berdasarkan jadual dalam* ***1****(a), carikan min pendapatan nelayan.*

For this part of the question, use the graph paper.

*Untuk ceraian soalan ini, gunakan kertas graf.*

(c) Using a scale of 2 cm to 5 kg on the *x*-axis, and 2 cm to
1 fisher on the *y*-axis, draw a frequency polygon.

 *Dengan menggunakan skala 2 cm kepada 5 kg pada paksi-x, dan 2 cm kepada seorang nelayan pada paksi-y, lukis satu poligon kekerapan bagi data tersebut.*

(d) Based on the frequency polygon in **1**(c), state the number of fishermen who caught more than 35 kg of fish.

 *Berdasarkan poligon kekerapan di* ***1****(c), nyatakan bilangan nelayan yang menangkap lebih daripada 35 kg ikan.* [14 *marks* / *14 markah*]

 Answer/*Jawapan*:

(a)

|  |  |  |  |
| --- | --- | --- | --- |
| **Class interval*****Selang kelas*** | **Midpoint*****Titik tengah*** | **Tally*****Gundal*** | **Frequency*****Kekerapan*** |
| 15 **–** 19 |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

 (b)

(c) Refer to your graph. *Rujuk kepada graf anda.*

(d)

1. Khatijah throws a dice. Determine whether the following are possible outcomes.

 *Khatijah melambung sebiji dadu. Tentukan kesudahan yang mungkin bagi berikut.*

 [5 *marks* / *5 markah*]

Answer/*Jawapan*:

1. 5 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(b) 3 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(c) 8 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(d) an even number / *nombor genap* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(e) a multiple of 7 / *gandaan 7*  = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. List the sample space for each of the following experiments.

 *Senaraikan ruang sampel bagi setiap ujikaji di bawah.* [7 *marks* / *7 markah*]

Answer/*Jawapan*:

1. Twirling a square spinner labeled *W, X, Y, Z*.

*Memutar pemutar segi empat sama berlabel W, X, Y, Z*

*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

1. There are 3 History books, 7 Science books and 2 Geography books on a shelf. A book is chosen from the shelf.

*Terdapat 3 buah buku Sejarah, 7 buah buku Sains dan 2 buah buku Geografi di sebuah rak. Sebuah buku dipilih dari rak tersebut*

*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

1. A ball is picked from a bag consisting of 5 black, 2 orange, 4 brown and 1 blue balls.

*Sebiji bola diambil dari sebuah bag yang mengandungi 5biji bola hitam, 3biji bola oren, 4 biji bola coklat dan sebiji bola biru.*

*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

1. A coin is tossed twice.

*Sekeping syiling dilambung dua kali.*

*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

1. Rolling a dice and tossing a coin simultaneously.

*Sebiji dadu dan sekeping syiling dilambung serentak.*

*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

1.

|  |  |  |  |
| --- | --- | --- | --- |
| Colour / *Warna* | Red / *Merah* | Blue /  *Biru* | Green /*Hijau* |
| Number of cards*Bilangan kad* | 10 | 8 | *x* |

The table above shows the number of cards of each colour in a box. A card is drawn at random and the probability of drawing a green card is 0.25.

*Jadual di atas menunjukkan bilangan kad bagi setiap warna dalam sebuah kotak. Sekeping kad dipilih secara rawak dan kebarangkalian memilih sekeping kad hijau ialah 0.25.*

1. Find the value of *x.*

*Carikan nilai x.*

1. Find the probability that red card is chosen.

*Cari kebarangkalian bahawa kad merah dipilih.*

1. Find the probability that non-blue card is chosen.

*Cari kebarangkalian bahawa bukan kad biru dipilih.*

1. If 2 red cards are removed and 2 blue cards are added, find the probability of drawing:

*Jika 2 kad merah dikeluarkan dan 2 kad biru dimasukkan, cari kebarangkalian*

1. Blue card is chosen / *kad biru dipilih*
2. Non-blue card is chosen / *bukan* *kad biru dipilih* [7 *marks* / *7 markah*]

Answer/*Jawapan*:

(a)

(b)

(c)

(d) (i)

 (ii)



1. In the figure, *MN* is a common tangent to two circles with centres *O* and *P*. Given that *OP*= 17.5 cm and that the radii of the circles with centres *O* and *P* are 2.6 cm and 7.5 cm respectively, calculate

 *Dalam gambar rajah, MN adalah tangen sepunya bagi dua bulatan yang berpusat di O dan P. Diberi OP=17.5cm dan jejari-jejari bagi bulatan di pusat O dan P adalah masing-masing 7.5cm dan 17.5cm. Kirakan*

 (a) the perimeter of the quadrilateral *MNOP*,

 *perimeter bagi segi empat MNOP,*

(b) the area of the quadrilateral *MNOP*.

 *luas bagi segi empat MNO*  [7 *marks* / *7 markah*]

Answer/*Jawapan*:

(a)

(b)

**KERTAS SOALAN TAMAT**