Table 13 shows the price indices in the year 2030 based on the year 2020, of four different materials P, Q, R and S in the production of a type of a soap. It also includes the proportions of the materials used in the production of the soap.

Jadual 13 menunjukkan indeks harga pada tahun 2030 berasaskan tahun 2020 bagi empat bahan berbeza P, Q, R dan S dalam pengeluaran sejenis sabun.

<table>
<thead>
<tr>
<th>Material Bahan</th>
<th>Price index in the year 2030 based on the year 2020 Indeks harga pada tahun 2030 berasaskan tahun 2020</th>
<th>Weightage Pemberat</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>125</td>
<td>k</td>
</tr>
<tr>
<td>Q</td>
<td>120</td>
<td>3</td>
</tr>
<tr>
<td>R</td>
<td>80</td>
<td>k + 1</td>
</tr>
<tr>
<td>S</td>
<td>150</td>
<td>6</td>
</tr>
</tbody>
</table>

(a) If the price of material P is RM3.00 in the year 2030, calculate its price in 2020.  
Jika bahan P berharga RM3.00 pada tahun 2030, hitung harganya pada tahun 2020.  
[2 marks/ markah]

(b) If the composite index in the year 2030 based on the year 2020 is 120, find the value of k.  
Jika indeks gubahan pada tahun 2030 berasaskan tahun 2020 ialah 120, cari nilai k.  
[2 marks/ markah]

(c) Find the price of the soap in the year 2030 if its price in 2020 was RM28.00.  
Cari harga sabun pada tahun 2030, jika harganya pada tahun 2020 ialah RM28.00.  
[2 marks/ markah]

(d) Given the price of material Q is estimated to decrease by 10% from the year 2030 to 2029, while the others remain unchanged. Calculate the composite index of the soap in the year 2029, based on the year 2020.  
Diberi bahawa harga bahan Q dianggarkan menurun 10% dari tahun 2030 hingga 2029, manakala selainnya tidak berubah. Hitung indeks gubahan bagi sabun pada tahun 2029 berasaskan tahun 2020.  
[4 marks/ markah]
Table 3 shows the price indices for the year 2014 based on the year 2013 and the percentages of usage of four ingredients in the making of a type of cake. Jadual 3 menunjukkan indeks harga tahun 2014 berasaskan tahun 2013 dan peratus penggunaan empat jenis bahan yang digunakan dalam pembuatan sejenis kek.

<table>
<thead>
<tr>
<th>Ingredient Bahan</th>
<th>Price Index Indeks Harga</th>
<th>Percentage (%) Peratus (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>J</td>
<td>84</td>
<td>5</td>
</tr>
<tr>
<td>K</td>
<td>154</td>
<td>40</td>
</tr>
<tr>
<td>M</td>
<td>189</td>
<td>10</td>
</tr>
<tr>
<td>N</td>
<td>h</td>
<td>45</td>
</tr>
</tbody>
</table>

Table 3  
Jadual 3

Find  
Cari

(i) the price of M in the year 2013 if its price in the year 2014 is RM2.00. harga M pada tahun 2013 jika harganya pada tahun 2014 ialah RM2.00
(ii) the price index of J in the year 2014 based on the year 2012 if its price index in the year 2013 based on the year 2012 is 184.


[5 marks]

(b) The composite index for the cost of the cake in the year 2014 based on the year 2013 is 154.

Indeks gubahan untuk kos kek itu pada tahun 2014 berasaskan tahun 2013 ialah 154.

Calculate Kirakan

(i) the value of \( h \),

\( \text{nilai} \ h \),

(ii) the corresponding price of the cake in the year 2013 if the price of a cake in the year 2014 is RM27.10.

harga sepadan bagi kek itu pada tahun 2013 jika harga kek itu pada tahun 2014 ialah RM27.10

[5 marks]

[5 markah]
A kind of herbal drink is produced by using four ingredients \( A, B, C \) and \( D \). Table 5 shows the prices of the ingredients.

Sejenis minuman herba dihasilkan menggunakan bahan \( A, B, C \) dan \( D \). Jadual 5 menunjukkan harga bahan tersebut.

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Bahan</th>
<th>Price per kilogram (RM)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>Harga per kilogram (RM)</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Year 2018</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Tahun 2018</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Year 2019</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Tahun 2019</strong></td>
</tr>
<tr>
<td>( A )</td>
<td></td>
<td>( p )</td>
</tr>
<tr>
<td>( B )</td>
<td></td>
<td>2.50</td>
</tr>
<tr>
<td>( C )</td>
<td></td>
<td>( q )</td>
</tr>
<tr>
<td>( D )</td>
<td></td>
<td>4.00</td>
</tr>
</tbody>
</table>

Table 5
Jadual 5

(a) The index number of ingredient \( A \) in the year 2019 based on the year 2018 is 120. Calculate the value of \( p \). [2 marks]

\[ Nombor ~ indeks ~ bagi ~ bahan ~ A ~ dalam ~ tahun ~ 2019 ~ berasaskan ~ tahun ~ 2018 ~ ialah ~ 120. ~ Hitung ~ nilai ~ p. \] [2 markah]

(b) The index number of ingredient \( C \) in the year 2019 based on the year 2018 is 125. The price per kilogram of ingredient \( C \) in the year 2019 is RM2.00 more than its corresponding price in the year 2018. Calculate the value of \( q \) and of \( r \). [3 marks]

(c) The composite index for the cost of making the herbal juice in the year 2019 based on the year 2018 is 127.5. Calculate

Indeks gubahan bagi membuat minuman herba pada tahun 2019 berasaskan tahun 2018 ialah 127.5. Hitungkan

(i) the price of the herbal juice in the year 2018 if its corresponding price in the year 2019 is RM30.60,

harga minuman herba pada tahun 2018 jika harga yang sepadan pada tahun 2019 ialah RM30.60,

(ii) the value of $t$ if the quantities of ingredients $A$, $B$, $C$ and $D$ used are in the ratio of $7:3:t:2$.

nilai $t$ jika kuantiti kandungan adalah mengikut nisbah $7:3:t:2$. 

[5 marks]  
[5 markah]
A particular kind of cakes is made using three ingredients, \( P, Q \) and \( R \). Table 3 shows the price indices for the year 2018 based on the year 2014 and the weightage of the ingredients.

Sejenis kek dibuat daripada tiga jenis bahan, \( P, Q \) dan \( R \). Jadual 3 menunjukkan indeks harga bagi tahun 2018 berbanding tahun 2014 dan pemberat bagi bahan – bahan tersebut.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Price index for year 2018 based on the year 2014</th>
<th>Weightage</th>
</tr>
</thead>
<tbody>
<tr>
<td>( P )</td>
<td>98</td>
<td>( y + 2 )</td>
</tr>
<tr>
<td>( Q )</td>
<td>123</td>
<td>( y + 4 )</td>
</tr>
<tr>
<td>( R )</td>
<td>( x )</td>
<td>( 5 )</td>
</tr>
</tbody>
</table>

Table 3
Jadual 3

(a) State the percentage of the decrease of the ingredient \( P \) from year 2014 to Year 2018.

Nyatakan peratus pengurangan bagi bahan \( P \) dari tahun 2014 ke tahun 2018.

(b) The price of ingredient \( Q \) in the year 2018 if the price of the year 2014 is RM 10.50.

Harga bagi bahan \( Q \) pada tahun 2018 jika harga pada tahun 2014 ialah RM 10.50.
(c) The price index of ingredient \( R \) for 2018 is based on the year 2016 is 125 and for 2016 is based on the year 2014 is 92. Find the value of \( x \).

\[ \text{Indeks harga bagi bahan } R \text{ bagi tahun } 2018 \text{ berbanding tahun } 2016 \text{ ialah } 125 \text{ dan pada tahun } 2016 \text{ berbanding } 2014 \text{ ialah } 92. \text{ Cari nilai bagi } x. \] [3 marks]

(d) The cost of making this type of cake in year 2014 is RM 55.00 and it has increased to RM 62.15 in year 2018. Find the value of \( y \).

\[ \text{Kos untuk membuat kek tersebut pada tahun } 2014 \text{ ialah RM } 55.00 \text{ dan meningkat kepada RM } 62.15 \text{ pada tahun } 2018. \text{ Cari nilai bagi } y. \] [4 markah]
Table 3 shows the price indices and weightages of four items $J$, $K$, $L$ and $M$, used in making a type of shoe. 

Jadual 3 menunjukkan indeks harga dan pemberat bagi empat bahan $J$, $K$, $L$ dan $M$, dalam pembuatan sejenis kasut.

<table>
<thead>
<tr>
<th>Item Bahan</th>
<th>Price index for the year 2018 (2017=100)</th>
<th>Price index for the year 2019 (2017=100)</th>
<th>Percentage Peratus</th>
</tr>
</thead>
<tbody>
<tr>
<td>$J$</td>
<td>110 (Indeks harga tahun 2018 2017=100)</td>
<td>125 (Indeks harga tahun 2019 2017=100)</td>
<td>$2p$</td>
</tr>
<tr>
<td>$K$</td>
<td>130</td>
<td>$\frac{750}{x}$</td>
<td>$30 + p$</td>
</tr>
<tr>
<td>$L$</td>
<td>$\frac{625}{x}$</td>
<td>140</td>
<td>28</td>
</tr>
<tr>
<td>$M$</td>
<td>105</td>
<td>20$y$</td>
<td>24</td>
</tr>
</tbody>
</table>

Table 3
Jadual 3

Given that the composite indices for the prices of the items in year 2018 and the year 2019 based on the year 2017 are 128.95 and 145.7 respectively.

Diberi bahawa indeks gubahan bagi harga item-item tersebut pada tahun 2018 dan 2019 berasaskan tahun 2017 masing-masing ialah 128.95 dan 145.7.

(a) (i) Find the value of $p$.
    Cari nilai bagi $p$.  
    [1 mark]

(ii) If the price of item $J$ in the year 2018 is RM5.00, find its price in the year 2017.
    [2 marks]
    $Jika$ harga bahan $J$ pada tahun 2018 ialah RM5.00, cari harganya pada tahun 2017.
    [2 markkah]

(b) The price of each item has increased by 45% from the year 2017 to the year 2020.
    Harga setiap item telah meningkat sebanyak 45% dari tahun 2017 ke tahun 2020.
    (i) Calculate the composite index for the year 2020 based on the year 2018.
    Hitung indeks gubahan bagi tahun 2020 berasaskan tahun 2018.
    [4 marks]

(ii) The total price of all the items in the year 2017 is RM 270. Calculate the corresponding total price of all the items in the year 2020.
    [4 markkah]

(c) Find the value of of $x$ and of $y$.
    Cari nilai bagi $x$ dan $y$.
    [3 marks]

(c) The composite index for the cost of making the shoes in the year 2018 based on the year 2017 is 126.25. Calculate

Indeks gubahan bagi kos membuat kasut itu dalam tahun 2018 berasaskan tahun 2017 ialah 126.25. Hitung

(i) the price of a pair of shoes in the year 2017 if its corresponding price in the year 2018 is RM65.65.

harga bagi sepasang kasut dalam tahun 2017 jika harga sepadan dalam tahun 2018 ialah RM65.65.

(ii) the value of \( k \) if the quantities of the materials \( P, Q, R \) and \( S \) used are in the ratio of 8 : 4 : \( k \) : 3.

nilai bagi \( k \) jika kuantiti bagi bahan \( P, Q, R \) dan \( S \) yang digunakan adalah dalam nisbah 8 : 4 : \( k \) : 3.

[5 marks/5 markah]
Table 2 shows the price indices and change in price indices of four raw materials $A$, $B$, $C$ and $D$, used in the production of a type of biscuit.

Jadual 2 menunjukkan indeks harga dan perubahan indeks harga bagi empat bahan mentah $A$, $B$, $C$ dan $D$ yang digunakan dalam pembuatan sejenis biskut.

<table>
<thead>
<tr>
<th>Raw material</th>
<th>Price index in 2016 based on 2013</th>
<th>Change in price index from 2016 to 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Indeks harga pada 2016 berasaskan 2013</td>
<td>Perubahan indeks harga dari 2016 ke 2019</td>
</tr>
<tr>
<td>$A$</td>
<td>120</td>
<td>5% decrease</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Menyusut 5%</td>
</tr>
<tr>
<td>$B$</td>
<td>110</td>
<td>Unchange</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tidak berubah</td>
</tr>
<tr>
<td>$C$</td>
<td>150</td>
<td>10% increase</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Menokok 10%</td>
</tr>
<tr>
<td>$D$</td>
<td>120</td>
<td>20% increase</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Menokok 20%</td>
</tr>
</tbody>
</table>

Table 2 / Jadual 2
Diagram 7 shows a pie chart which represents the mass of the raw materials used to make the biscuits in the year 2013.

Rajah 7 menunjukkan carta pai yang mewakili jisim bahan mentah yang digunakan untuk membuat biskut itu pada tahun 2013.

Diagram 7 / Rajah 7

(a) The price of raw material A in the year 2016 is RM99. Find the corresponding price in the year 2013.  
[2 marks]  
[2 markah]

(b) Find the price indices of all the raw materials in the year 2019 based on the year 2013.  
[3 marks]  
Cari indeks harga bagi kesemua empat bahan mentah pada tahun 2019 berasaskan tahun 2013.  
[3 markah]

(c) (i) Calculate the composite index for the cost of producing the biscuits in the year 2019 based on the year 2013.  

(ii) Hence, find the cost of producing the biscuits in the year 2013 if the corresponding cost in the year 2019 is RM425.00  
Seterusnya, cari kos penghasilan biskut itu pada tahun 2013 jika kos yang sepadan pada tahun 2019 ialah RM425.00.  
[5 marks]  
[5 markah]
Diagram 9 shows a bar chart on the average monthly number of pairs of tennis, badminton, football and golf shoes sold in the year 2015.

Rajah 9 menunjukkan carta palang purata bulanan bilangan pasang kasut tenis, badminton, bola sepak dan golf yang dijual pada tahun 2015.

Table 2 shows the prices and price indices of each pair of tennis, badminton, football and golf shoes in the year 2017 based on 2015.

<table>
<thead>
<tr>
<th>Types of shoes</th>
<th>Price per pair (RM)</th>
<th>Price index in 2017 based on 2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Harga untuk satu pasang (RM)</td>
<td></td>
</tr>
<tr>
<td>Tennis / Tenis</td>
<td>$r$</td>
<td>220.00</td>
</tr>
<tr>
<td>Badminton</td>
<td>150.00</td>
<td>187.50</td>
</tr>
<tr>
<td>Football / Bola sepak</td>
<td>180.00</td>
<td>189.00</td>
</tr>
<tr>
<td>Golf</td>
<td>400.00</td>
<td>$t$</td>
</tr>
</tbody>
</table>

Table 2
Jadual 2
(a) Find the value of \( r \), \( s \) and \( t \).

Cari nilai \( r \), \( s \) dan \( t \). [3 marks]

(b) Using the data in Diagram 9 as the weightage, calculate the composite index of the four types of shoes in the year 2017 based on 2015.

Dengan menggunakan data dalam Rajah 9 sebagai pemberat, hitung indeks gubahan bagi keempat-empat jenis kasut pada tahun 2017 berasaskan 2015. [2 markah]

(c) If the total monthly sales for these four types of shoes in January 2015 is RM75 000, find the corresponding total monthly sales in January 2017. Hence, calculate the average daily sales for that month.

Jika jumlah jualan bulanan bagi empat jenis kasut itu pada Januari 2015 ialah RM75 000, cari jumlah jualan bulanan yang sepadan pada Januari 2017. Seterusnya, kira purata jualan harian bagi bulan tersebut. [3 markah]

(d) The average prices of the shoes are expected to rise by 40% from the year 2015 to the year 2019. Calculate the composite-index of the year 2019 based on 2017.

Table 3 shows the price indices of four main components $P$, $Q$, $R$ and $S$, used to produce a table in the year 2018 based on the year 2016 and their respective weightages.

Jadual 3 menunjukkan indeks harga bagi empat komponen utama, $P$, $Q$, $R$ dan $S$, yang digunakan untuk menghasilkan sebuah meja pada tahun 2018 berasaskan tahun 2016 serta pemberat masing-masing.

<table>
<thead>
<tr>
<th>Component Komponen</th>
<th>Price index for the year 2018 based on the year 2016</th>
<th>Weightage Pemberat</th>
</tr>
</thead>
<tbody>
<tr>
<td>$P$</td>
<td>$x$</td>
<td>2</td>
</tr>
<tr>
<td>$Q$</td>
<td>140</td>
<td>4</td>
</tr>
<tr>
<td>$R$</td>
<td>120</td>
<td>3</td>
</tr>
<tr>
<td>$S$</td>
<td>110</td>
<td>5</td>
</tr>
</tbody>
</table>

Jadual 3
Table 3

(a) Calculate
Hitung

(i) the price of component $R$ in the year 2018 if the price in the year 2016 is RM 30.


(ii) the price index of component $Q$ in the year 2018 based on the year 2010 if its price index in the year 2016 based on the year 2010 is 125.

(b) The composite index for the production cost of the tables in the year 2018 based on the year 2016 is 120.

Indeks gubahan bagi kos penghasilan meja itu pada tahun 2018 berasaskan tahun 2016 ialah 120.

(i) Find the value of $x$,

Cari nilai $x$,

(ii) The rate of increase in production cost of the tables from the year 2018 to the year 2020 is expected to be the same as that from the year 2016 to the year 2018. Calculate the composite index in the year 2020 based on the year 2016.


[5 marks]

[5 markah]
2) (a) (i) \[
\frac{2}{P_{2013}} \times 100 = 189 \quad K1
\]

\[
P_{2013} = RM1.06 \quad (\text{mesti 2 titik perpuluhan}) \quad N1
\]

(ii) \[
\frac{184 \times 84}{100} \quad K1K1
\]

\[
= 154.56 \quad N1
\]

(b) (i) \[
\frac{(84 \times 5) + (154 \times 40) + (189 \times 10) + (45h)}{100} = 154 \quad K1K1
\]

\[
h = 154 \quad N1
\]

(iii) \[
\frac{27.10}{P_{2013}} \times 100 = 154 \quad K1
\]

\[
P_{2013} = RM17.60 \quad (\text{mesti 2 titik perpuluhan}) \quad N1
\]
(3)

a) \( \frac{6}{p} \times 100 = 120 \)

\[ p = 5 \]

b) \( \frac{r}{q} \times 100 = 125 \)

\[ \frac{q+2}{q} \times 100 = 125 \]

\[ q = 8 \]

\[ r = 10 \]

c)

(i) \( \frac{30.60}{P_{2013}} \times 100 = 127.5 \)

\[ P_{2018} = RM24 \]

(ii) \( 127.5 = \frac{(120 \times 7) + (160 \times 3) + 125t + (110 \times 2)}{7 + 3 + m + 2} \)

\[ 2.5m = 10 \]

\[ m = 4 \]
(4)

(a) 2%

(b) \[123 = \frac{P_{18}}{10.50} \times 100\]

RM 12.92

(c) \[\frac{92}{100} = \frac{x}{125}\]

\[x = 115\]

(d) \[I_{18/14} = \frac{62.15}{55.00} \times 100\]

\[I_{18/14} = 113\]

\[\frac{98(y + 2) + 123(y + 4) + 115(5)}{y + 2 + y + 4 + 5} = 113\]

\[y = 4\]
(a)(i) \( p = 6 \)

(a)(ii) \[
\frac{5.00}{0.2017} \times 100 = 110 \\
RM 4.55
\]

(b)(i) \[
\frac{145 \times 100}{128.95} = 112.4
\]

(ii) \[
\frac{Q}{270} \times 100 = 145 \\
RM 391.50
\]

(c) \[
\frac{110(12) + 130(36) + \frac{625(28)}{x} + 105(24)}{100} = 128.95 \quad \text{or}
\]
\[
\frac{125(12) + \frac{750(36)}{x} + 140(28) + 20y(24)}{100} = 145.7
\]

\[ x = 4 \quad \text{and} \quad y = 5 \]

---

(6)

(a) \[ 125 = \frac{w}{7.00} \times 100 \quad \text{OR} \quad 135 = \frac{x + 1.40}{x} \times 100 \quad \text{K1} \]

\[ w = 8.75 \quad \text{N1} \]

\[ y = x + 1.40 \quad \text{or implied} \quad \text{P1} \]

\[ x = 4.00 \quad \text{N1} \]

\[ y = 5.40 \quad \text{N1} \]

(c)(i) \[ 126.25 = \frac{65.65}{\text{Tahun 2017}} \times 100 \quad \text{K1} \]

\[ \text{Tahun 2017} = RM 52.00 \quad \text{N1} \]

(ii) \[ l_Q = 130 \quad \text{or} \quad l_S = 110 \quad \text{P1} \]

\[ 126.25 = \frac{125(8) + 130(4) + 135(k) + 110(3)}{8 + 4 + k + 3} \quad \text{K1} \]

\[ k = 5 \quad \text{N1} \]
(a) \[ \frac{220}{r} \times 100 = 110 \]
\[ r = 200 \]
\[ s = \frac{187.5}{150} \times 100 \]
\[ s = 125 \]
\[ \frac{t}{400} \times 100 = 130 \]
\[ t = 520 \]

(b) \[ \frac{(110 \times 100) + (125 \times 80) + (105 \times 60) + (130 \times 40)}{280} \]
\[ 116.07 \]

(c) \[ \frac{U}{75000} \times 100 = 116.07 \]
\[ U = 87052.50 \]
\[ 2808.15 \]

(d) \[ \frac{140}{116.07} \times 100 \]
\[ 120.62 \]