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Economics
Higher level
Paper 3

Tuesday 10 May 2022 (morning)

Candidate session number

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1 hour

Instructions to candidates

- Write your session number in the boxes above.
- You are permitted access to a calculator for this paper.
- Do not open this examination paper until instructed to do so.
- Answer one question.
- Answers must be written within the answer boxes provided.
- Unless otherwise stated in the question, all numerical answers must be given exactly or correct to two decimal places.
- You must show all your working.
- Use fully labelled diagrams where appropriate.
- The maximum mark for this examination paper is **[30 marks]**.



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Answers written on this page
will not be marked.



Answer **one** question. Answers must be written within the answer boxes provided.

- 1. Burundi is a landlocked country in Central Africa. Its economy is heavily reliant on the agricultural sector, which employs 92 % of the labour force but contributes only 40 % of gross domestic product (GDP). Most of the 11.5 million population live in poverty, especially in rural areas. The level of food insecurity (people without access to enough food) is almost twice as high as the average for sub-Saharan African countries with more than 60 % of the population living below the poverty line.

Infrastructure in Burundi is poor. There are no railroads and only three major routes through the country, two of which involve water transport, across Lake Tanganyika. Access to clean water is low, while fewer than 5 % of the population have access to electricity. The literacy rate for those aged 15 and over is 61.6 %, while only 1 % of secondary schools have access to the internet.

Table 1: Labour market data for Burundi (2019)

Population	Employed	Unemployed
11 500 000	4 908 500	74 750

- (a) (i) Using the information provided in **Table 1**, calculate the rate of unemployment for Burundi in 2019.

[2]

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Approximately 92 % of the labour force are employed in agriculture, which contributes 40 % of Burundi's GDP.

- (ii) Explain why dependence on primary sector production may be considered a barrier to economic development.

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16EP03

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(Question 1 continued)

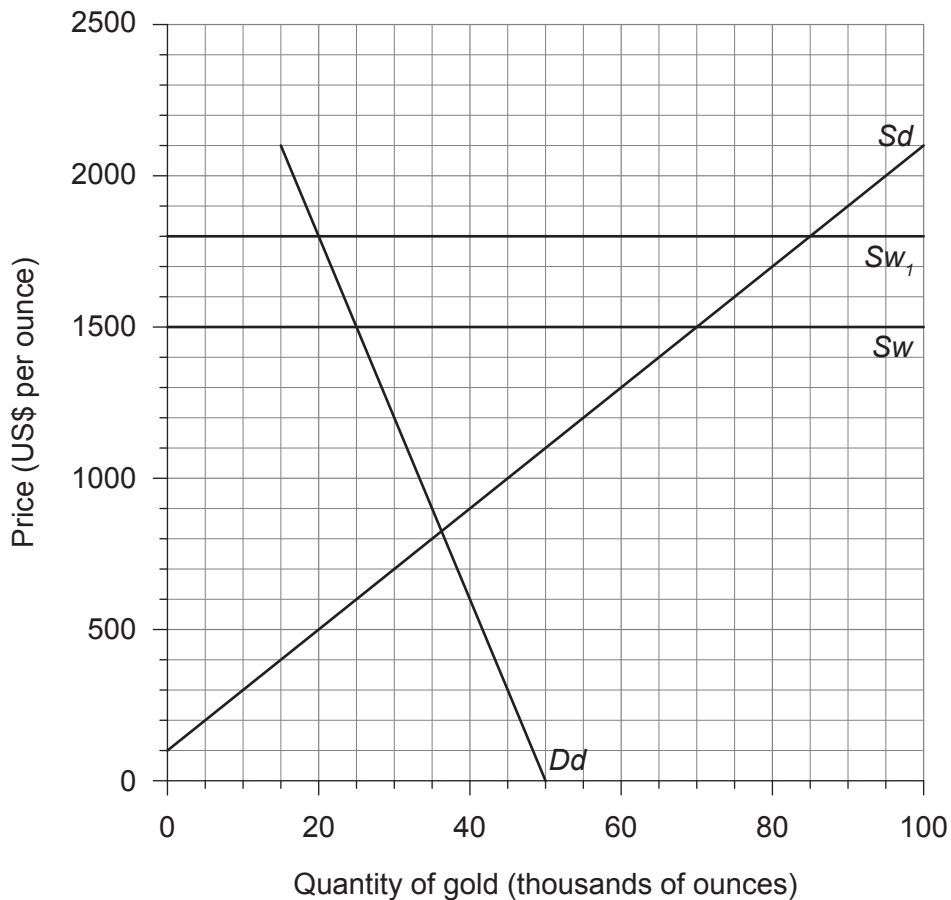
Trade

The main exports of Burundi in 2018 were gold (41.4%), coffee (17.3%) and tea (9.5%), while refined petroleum (17.3%) was its main import. Although the current account deficit was reduced to 10% of GDP in 2019, there remains a huge imbalance between exports and imports. Reserve assets do not cover more than one month of imports, while the economy relies on foreign aid and foreign direct investment (FDI) to finance the deficit. The low level of foreign aid is likely to be insufficient to finance the deficit.

On the upside, Burundi has an abundance of minerals, including 6% of the world's nickel reserves. It is the only African country producing rare-earth minerals, which are used in many hi-tech products, such as smartphones. The United States (US) has been keen to diversify its supply of rare-earth minerals because of its trade dispute with China.

Figure 1 shows the market for gold in Burundi. Dd and Sd represent the yearly domestic demand and supply functions for gold, while Sw and Sw_1 represent the world supply of gold in 2019 and 2020 respectively. The price of gold is measured in US dollars (US\$) per ounce (oz). The world price increased from US\$1500 per oz to US\$1800 per oz between July 2019 and July 2020.

Figure 1



(This question continues on the following page)



(Question 1 continued)

- (iii) Using the information in **Figure 1**, calculate the price elasticity of demand for gold in Burundi when price increases from US\$1500 per oz to US\$1800 per oz. [2]

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- (iv) Using the information in **Figure 1**, calculate the change in the value of Burundi's gold exports resulting from the increase in the price of gold from US\$1500 per oz to US\$1800 per oz. [2]

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Government finance

The budget deficit of Burundi increased in 2019, partly due to an inefficient system for collection of taxes. Tax rates in Burundi are given in **Table 2**.

Table 2

Type of tax	Rate of tax
Corporate income tax	30 %
Personal income tax	Progressive tax rates up to 30 %*
Indirect tax (known as value-added tax (VAT) in Burundi)	20 %, 10 %, 0 % (different rates for different types of product)

* Top rates of personal income tax in other countries are often much higher, such as 57.2 % in Sweden and 35 % in Mexico.

- (v) Define the term *progressive tax*. [2]

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16EP05

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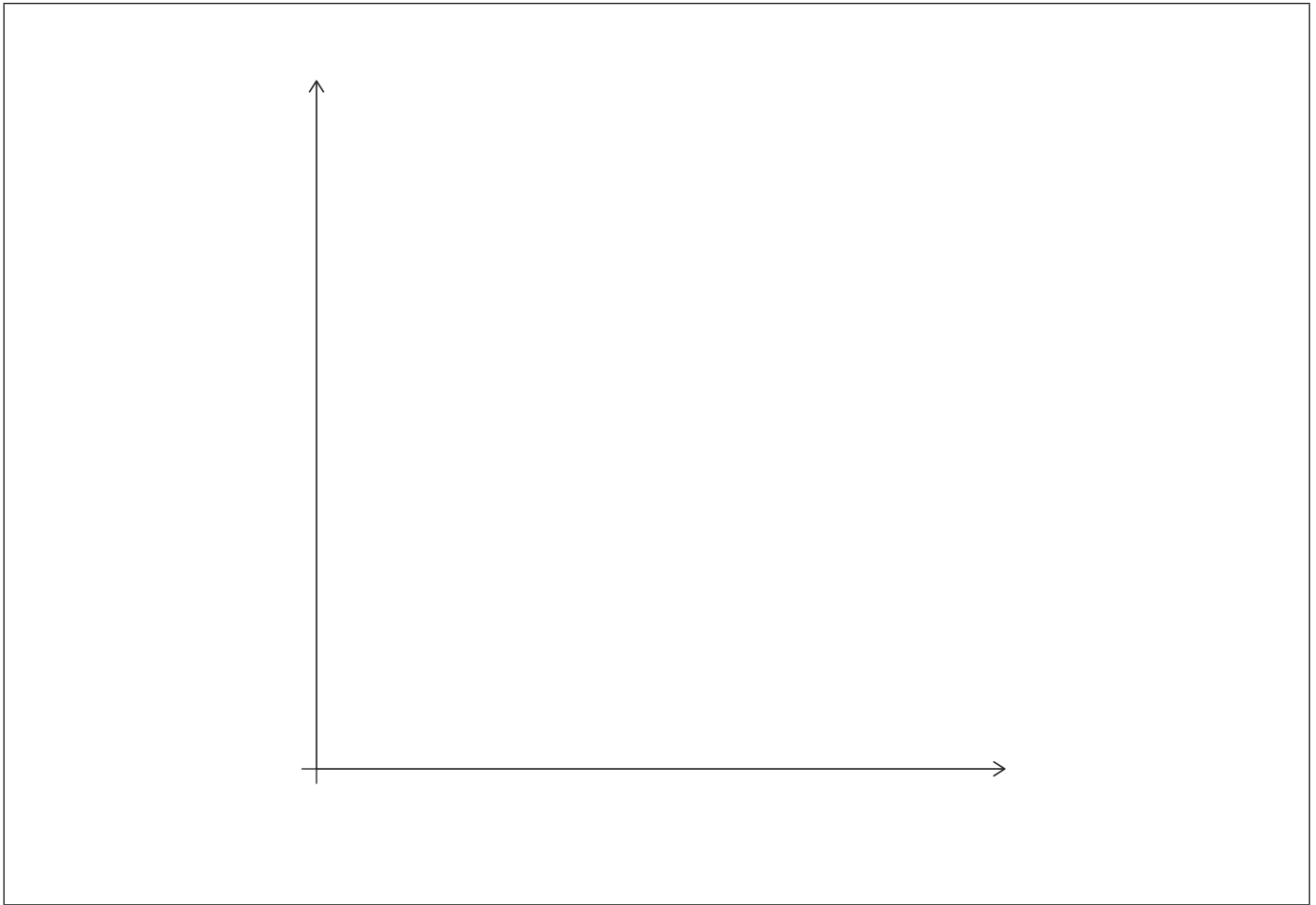
(Question 1 continued)

A firm in Burundi paid 32 000 Burundi francs (Fbu), including VAT, in order to purchase a piece of industrial equipment. The rate of VAT for this equipment is 20 %.

(vi) Calculate the amount of VAT which was paid on the purchase of this equipment. [2]

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(vii) Sketch an AD/AS diagram to illustrate the possible effect on the Burundian economy in the long run if the government reduces the rate of corporate income tax from 30 % to 26%. [2]



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(Question 1 continued)

Gender inequality in Burundi

Table 3 illustrates selected indicators of gender inequality in Burundi compared with Mexico and Sweden.

Table 3

	Burundi	Mexico	Sweden
Ratio of females to males with some secondary education	0.68	0.96	1.00
% of science and engineering graduates who are female	18.2	31.1	35.2
% of women aged 15+ who have a bank account	6.7	33.3	100
Maternal mortality ratio (deaths per 1 000 000 live births)	712	38	4
Gini coefficient	0.39	0.43	0.29
Human Development Index (HDI)	0.42	0.77	0.94
Gross National Income (GNI) per capita (2011 PPP US\$)	660	17 628	47 955

(viii) With reference to the data in **Table 3**, explain **two** ways in which gender inequality might act as a barrier to economic development in Burundi.

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2. Traffic congestion is a major problem in India. It is estimated that congestion in four major cities costs the Indian economy approximately US\$22 billion annually. According to a 2019 survey, India has four of the eight most congested cities in the world. People in these cities pay higher fuel costs, inhale toxic gases, and waste up to 11 days a year stuck in traffic.

In New Delhi, India's capital city, 45% of workers use cars to travel to work, while 89% of workers indicate plans to purchase a car in the next five years. However, 80% of car users say they would change their plans if ridesharing businesses such as Uber could meet their requirements on price, timeliness and availability.

(a) (i) Using a diagram and the information above, explain why traffic congestion in India may be considered an example of market failure.

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(Question 2 continued)

Taxes on fuel

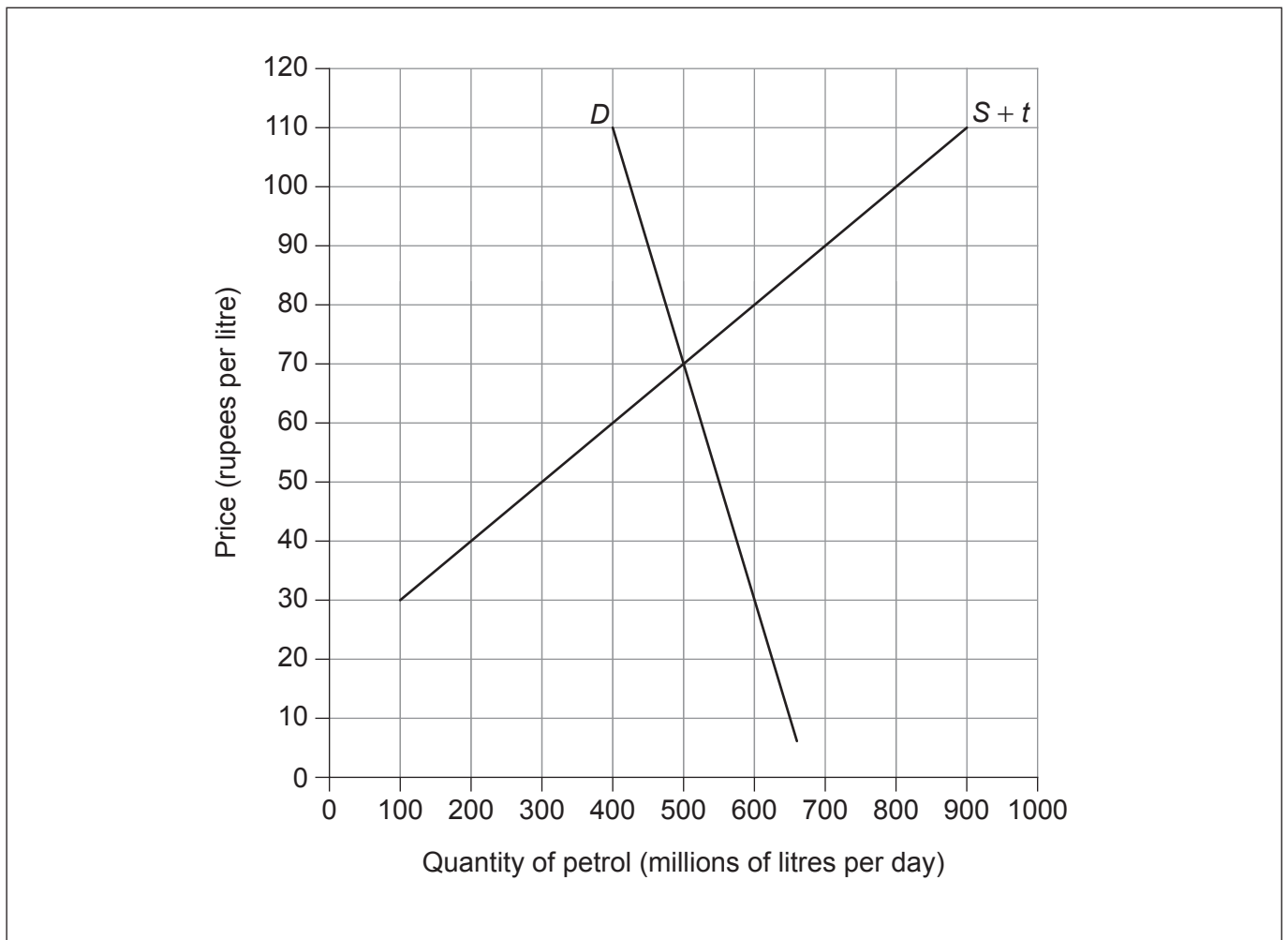
India is said to have the highest taxes on fuel in the world. At the current market equilibrium, the price of petrol (gasoline) in New Delhi is comprised of the components shown in **Table 4** (approximate figures).

Table 4

Components	Rupees/litre
Indirect taxes (per litre)	50
Cost for suppliers	17
Profit for suppliers	3
Price of petrol	70

Figure 2 illustrates the market for petrol in New Delhi. *D* represents the demand for petrol in millions of litres per day. *S + t* represents the supply (incorporating the effect of indirect tax) of petrol in millions of litres per day.

Figure 2



(This question continues on the following page)



(Question 2 continued)

(ii) On **Figure 2**, draw the market supply curve **without** the indirect taxes for petrol in New Delhi. [2]

(iii) Using **Figure 2**, calculate the revenue (in rupees per day) collected from the indirect taxes on petrol in New Delhi. [2]

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(iv) Using **Figure 2** and your answer to part (a)(ii), calculate the loss in consumer surplus which results from the imposition of indirect taxes on petrol in New Delhi. [2]

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(v) Using **Figure 2** and your answer to part (a)(ii), show that in the absence of indirect taxes the supply of petrol in New Delhi would be price inelastic. [2]

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(vi) Using **Figure 2** and the information in **Table 4**, calculate the total profit earned by petrol suppliers in New Delhi per day. [2]

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(Question 2 continued)

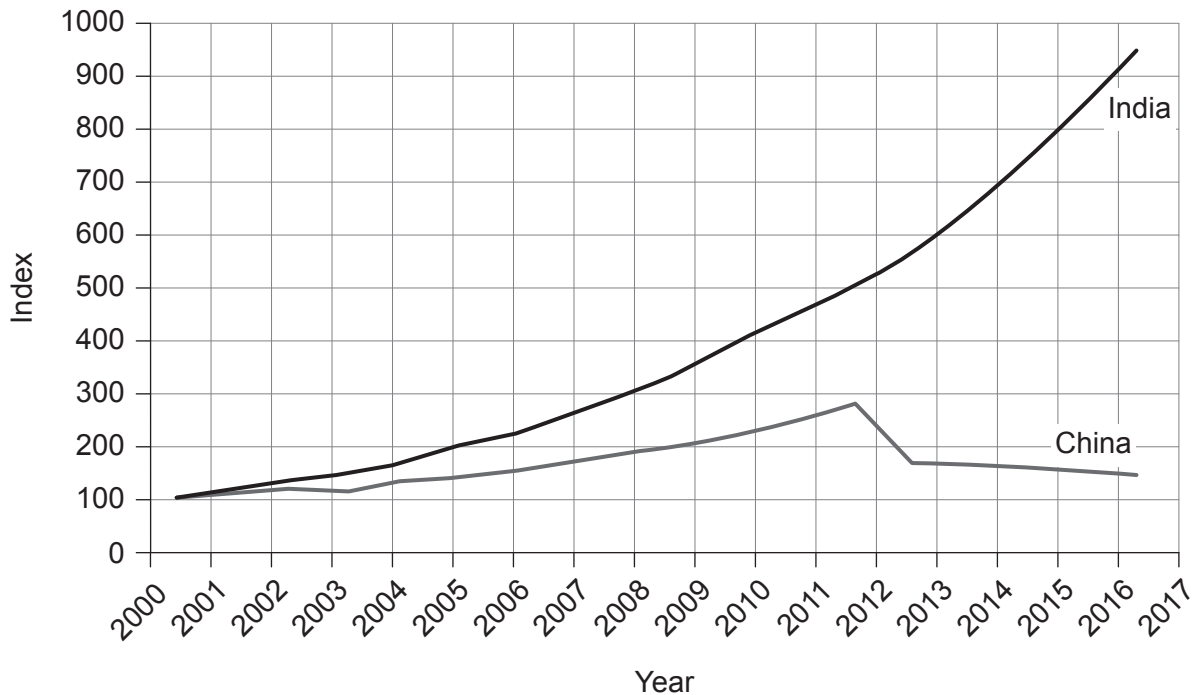
The causes and costs of congestion

In the last 10 years, India's road network has increased by 34 % while vehicle registrations have increased by 200 %. Additionally, India's strong rate of economic growth has resulted in increased demand for motor vehicles.

Traffic congestion involves slower speeds and increased journey times, which impose higher costs on the economy. Congestion has a range of indirect impacts including environmental harm, inefficient use of resources and reduced quality of life.

Figure 3 shows the growth in road passenger traffic in India and China from 2000 to 2017. It can be seen that there has been a huge increase in the use of road passenger traffic in India. It has been argued that Indian workers who implement rational consumer choice would assess the costs and benefits of using cars and, as a result, many would switch to alternative forms of transport.

Figure 3



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(Question 2 continued)

(vii) Define the term *rational consumer choice*.

[2]

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(viii) With reference to the use of cars in India, explain how **one** limitation of the assumptions of rational consumer choice might result in the overuse of cars in New Delhi.

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(Question 2 continued)

- (b) Using the text/data provided and your knowledge of economics, recommend a policy which could be introduced by the government of India in order to address the problem of traffic congestion in New Delhi.

[10]

Dotted lines for writing the answer.



References:

1. United Nations Development Programme, 2020. *The Next Frontier: Human Development and the Anthropocene* [online] Available at: <http://hdr.undp.org/sites/default/files/Country-Profiles/BDI.pdf> [Accessed 20 April 2020]. Source adapted.
The World Bank, n.d. *Population, total – Burundi* [online] Available at: <https://data.worldbank.org/indicator/SP.POP.TOTL?locations=BI> [Accessed 20 April 2020]. Source adapted.
United Nations Development Programme, n.d. *Human Development Reports* [online] Available at: <http://www.hdr.undp.org/en/countries/profiles/BDI> [Accessed 20 April 2020]. Source adapted.
2. © *The Times of India*, Dash, D.K., 2018. 'Traffic congestion costs four major Indian cities Rs 1.5 lakh crore a year' [online] Available at: <https://timesofindia.indiatimes.com/india/traffic-congestion-costs-four-major-indian-cities-rs-1-5-lakh-crore-a-year/articleshow/63918040.cms> [Accessed 20 April 2020]. Source adapted.



16EP15

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16EP16