

# Question Paper

Exam Date & Time: 29-Nov-2019 (02:00 PM - 05:00 PM)



## MANIPAL ACADEMY OF HIGHER EDUCATION

SECOND SEMESTER MASTER OF PUBLIC HEALTH (EPIDEMIOLOGY) DEGREE EXAMINATION - NOVEMBER 2019  
SUBJECT: HEALTH ECONOMICS (MPH 608)  
(2018 BATCH - REPEATER)  
Friday, November 29, 2019 (14.00 - 17.00)

Marks: 70

Duration: 180 mins.

### Essay Questions

#### 1) Read the following:

##### **Patent challenge mounted against J&J's attempt to extend monopoly on high-priced anti-TB drug**

*At present, a mere 2% of over 1.47 lakh patients suffering from multi drug resistant tuberculosis (MDR-TB) in India are currently getting Bedaquiline - a newer drug which is safer and more effective. Despite benefits of the drug, its high price remains a significant barrier for the government to make it available to all the patients enrolled with it.*

TNN | February 09, 2019, 06:53 IST

NEW DELHI: In a move that may boost chances of patients access to 'priority' anti-TB drug Bedaquiline, two tuberculosis survivors have filed a patent challenge at the Mumbai Patent Office against Johnson & Johnson's application to extend the patent on the drug for another four years.

At present, a mere 2% of over 1.47 lakh patients suffering from multi drug resistant tuberculosis (MDR-TB) in India are currently getting Bedaquiline - a newer drug which is safer and more effective. Despite benefits of the drug, its high price remains a significant barrier for the government to make it available to all the patients enrolled with it. Making things worse, Johnson & Johnson has sought to extend its patent protection on the drug in India from 2023 to 2027, delaying entry of low cost generics by four additional years.

In order to prevent the company from extending its monopoly on the patented drug and ensure it is made affordable and accessible, TB survivors, Nandita Venkatesan from Mumbai and Phumeza Tisile from South Africa, have filed a patent challenge at the Mumbai Patent Office against J&J's application.

This is significant also because currently 10,000 courses of Bedaquiline have been committed to India for free by J&J through US AID. Of this, 6,750 have already been donated and the programme is set to end in 2019. In the absence of low-priced generic options, the government may have to shell out a hefty sum to sustain its programme and meet its 2025 deadline for TB eradication.

An e-mail query sent to J&J didn't elicit any response till the time of going to press.

Public health advocacy groups like Médecins Sans Frontières (MSF - Doctors without Borders) have extended support to Venkatesan and Phumeza, who have both survived drug-resistant TB, but lost their hearing because of the toxicity of the treatment in the absence of Bedaquiline.

Studies show Bedaquiline is safer and more effective than the injectibles which caused side-effects to Venkatesan, Phumeza and many other such patients.

"I lost my hearing when I was 24 because of the brutal side-effect of an injected DR-TB drug. With this patent challenge, we want that the drug should be available to more number of patients. We know that the uptake of the drug has been slow and at a time when the coverage should be expanded, an extended patent protection will be a deterrent to its accessibility," said Venkatesan.

The J&J patent application being challenged is for the salt form of Bedaquiline, which does not merit patenting under India's patent law, the MSF said in a note. This strategy of 'patent ever-greening' by filing additional, often unmerited patents, is commonly used by corporations to extend monopolies on their drugs beyond the standard 20 years.

WHO guidelines for TB treatment recommends Bedaquiline for all MDR-TB patients. However, as per Indian treatment protocol, only patients with fluoroquinolone resistance, which is around 30,000 patients, are eligible to receive Bedaquiline under national TB programme. Even then, only around 3,000 patients are currently getting Bedaquiline under the government programme.

"Preventing this patent barrier is expected to encourage TB drug manufacturers from India to enter the market with generics and supply Bedaquiline at lower prices to national TB programmes and TB care providers globally," says Leena Menghaney, South Asia head for MSF.

**Source:** <https://health.economictimes.indiatimes.com/news/pharma/patent-challenge-mounted-against-jjs-attempt-to-extend-monopoly-on-high-priced-anti-tb-drug/67909721> accessed on 21st Feb 2019.

- 1A) Account for factors leading to high price for Bedaquiline. What are its consequences? (5)
- 1B) Do you think Indian drug manufacturers should be allowed to enter the market with generics? Why? why not? (5)

2) A study estimates that the price elasticity of demand for Effexor XR is -3.41, but the price elasticity of demand for tricyclic antidepressants as a whole is -0.22.

- 2A) Why is demand for Effexor XR more elastic than for antidepressants as a whole? (2)
- 2B) What would happen to revenues if the makers of Effexor XR raised prices by 10 percent? (3)
- 2C) What would happen to industry revenues if all manufacturers raised prices by 10 percent? (3)
- 2D) Why are the answers so different? Does this make sense? (2)

3) The following table contains demand and supply data for eyeglasses in a local market.

Price (INR)	Demand	Supply
3000	7400	8320
2900	7480	8200
2800	7520	8080
2700	7600	7960
2600	7640	7840
2500	7720	7720
2400	7760	7600
2300	7840	7480
2200	7880	7360

- 3A) To sell 7840 pairs to customers, what will the price need to be? (1)
- 3B) For stores to be willing to sell 7840 pairs, what will the price need to be? (1)
- 3C) How many pairs will customers want to buy and stores want to sell if the price is INR 2900? Is there excess supply or excess demand at INR 2900? (2)
- 3D) What is the equilibrium price? How can you tell? (2)
- 3E) If the current price is INR 2900, will market forces help to reach the equilibrium price? Justify your answer. (4)
- 4) What are the key issues and challenges in the Indian Health care system? Suggest measures to address them. (10)

5) Write short notes on:

- 5A) Highlight unique features of medical care market as compared to market for other goods and services. (5)
- 5B) How does insurance impact the demand for health care? (5)
- 5C) Per capita income in Pitt County is \$45,000. Per capita income in Chatham County is \$38,000. Physician visits average 3.4 per year in Pitt County and 3.2 per year in Chatham County. What is the arc income elasticity of demand for visits? (5)
- 5D) Differences in the production function for an intervention like polio vaccination in an urban area and rural area. (5)
- 5E) Economies of scale and Economies of scope (5)
- 5F) Quality Adjusted Life Years (5)

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