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UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2021/2022**

COURSE NAME : TECHNOLOGY TRANSFER

COURSE CODE : BPB 42703

PROGRAMME CODE : BPA

EXAMINATION DATE : JULY 2022

DURATION : 3 HOURS

INSTRUCTION

1. ANSWER **ALL** QUESTIONS
2. THIS FINAL EXAMINATION IS CONDUCTED VIA **CLOSED BOOK**.
3. STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA CLOSED BOOK

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

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TERBUKA

Q1 Access to clean, affordable, and safe drinking water is both a fundamental human right recognized by the United Nations and Goal 6 of the United Nation’s Sustainable Development Goals. However, access to this essential resource in Africa is not yet universal, with 1 in 3 Africans facing water scarcity and approximately 400 million people in sub-Saharan Africa lacking access to a basic drinking water. Access to water remains a pervasive development issue across the continent, as a 2019 report by the World Resources Institute (WRI) revealed: Indeed, addressing climate change and poor management of water resources and services is paramount to tackling Africa’s water stress.

(Source: *www.brookings.edu*, 23rd July 2021)



Figure Q1: Africa’s water collection activity

- (a) Define appropriate technology with an example. (4 marks)

- (b) Compare **THREE (3)** external forces that effect the scenario in **Figure Q1** between least developed country and developing country which relevant to appropriate technology transfer. (10 marks)

- (c) Justify **TWO (2)** criteria for the successful appropriate technology transfer between two different countries. (6 marks)

- Q2** (a) Sketch the technology transfer pyramid. (8 marks)

- (b) Interpret the technology transfer pyramid drawn in **Q1(a)** in relation to technological capability improvement. (12 marks)

Q3 Developing countries have been largely peripheral to the world system of technological development and innovation, with respect to their institutional features as well as the resultant technologies. The serious problems within the socio-economic systems of developing countries, along with the absence or shortage of technological foundations and institutional requirements, mean that a laissez-faire approach will not obtain the best results: an active technological strategy is necessary. Developing countries contemplating technology transfer are faced with an intrinsically imperfect production system; they also usually need to develop their own system of government interventions aimed at promoting and protecting technology-creating activities. Each country has a unique and complex set of policies determined by multiple objectives, by the resources and technologies used to produce different services and commodities, what is imported, what is exported, what is not traded, and its presence in different world market: large in some markets, small in others. It is generally accepted that the assessment and selection of technologies should be carried out in ways that maximize the national objective function, subject to certain constraints.

(Source: Cohen, 2022)

(a) Classify **TWO (2)** groups of constraints that challenge the technology transfer planning process within a developing country.

(12 marks)

(b) Illustrate the systemic process of evaluating candidate technologies for transfer.

(8 marks)

Q4 The transfer of technology brings with it both costs and benefits. It is argued that technology transfer is largely an economic activity. In this discussion, technology is anything that increases one's knowledge or practical experience. Conceptual technology creates theories; implemental technology reduces theory to practice; practice technology guides their routine application. The transfer of technology will take place when the perceived benefits outweigh the perceived costs of the transfer; the firm that moves early to transfer technology foresees greater benefits or lower costs than other firms.

The extent of the market, the number of competitors in the industry, and the industry cost structure are market structure issues. Each is important, both separately and collectively. An industry characterized by few competitors tends toward oligopoly and given the size of the market, has a higher cost per unit of production than an equivalent competitive industry. The literature indicates that technology transfer is more likely to take place when it is perceived that a dependable, sizable market exists. Market stability is more likely to occur as a consequence of an oligopolistic market rather than a competitive market.

The government will provide a stable and well-defined environment for business activity. Frequently, providing that environment requires government intervention through participation in international rule-making bodies and other international institutional arrangements. Within the established framework, this is not heavy government intervention. Heavy government intervention consists of such things as encouraging voluntary quotas, assessing punitive tariffs, and intervening on the behalf of a particular industry to balance biases imposed by other governments. Such government intervention can affect the cost of transferring technology, not only through such mechanisms as tax code preferences, but also by applying pressure in the marketplace.

An increasingly competitive global marketplace has brought the discussion of technology transfer back into the literature. Many benefits are seen to accrue to those companies and countries that can successfully compete in the global market. High wage employment for a nation's citizens and the survival of entire industries may be at stake. It has also been noticed that technology transfer no longer primarily takes place within the multinational firm but rather is increasingly between relative equals although they reside in different countries. Others contend that after several decades of technology transfer between Western companies and Japanese companies, the benefits have not been equally shared by the partners in the transfer. Western firms have, in general, been weakened and the Japanese firms have, in general, been strengthened.

(Source: Jensen & Scheraga, 1998)

- (a) Identify **TWO (2)** generic concepts of cost and benefits in technology transfer from the text in **Q4**. (4 marks)
- (b) Illustrate the system benefits model of a technology transfer. (6 marks)
- (c) Support the model from **Q4(b)** using the information in the excerpt given. (10 marks)
- Q5**
- (a) Define technology licensing. (2 marks)
- (b) Give **ONE (1)** example of technology licensing. (2 marks)
- (c) Discuss **TWO (2)** responsibilities borne by a company which decides on licensing in a technology. (4 marks)
- (d) Analyze **THREE (3)** disadvantages of technology licensing from both viewpoints of licensor and licensee. (12 marks)

– END OF QUESTIONS –