



UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER I
SESSION 2018/2019**

COURSE NAME : PHYTOMEDICINE
COURSE CODE : BWJ 41103
PROGRAMME : BWW
EXAMINATION DATE : DECEMBER 2018 / JANUARY 2019
DURATION : 3 HOURS
INSTRUCTIONS : ANSWER ALL QUESTIONS

TERBUKA

THIS QUESTION PAPER CONSISTS OF **THREE (3)** PAGES

- Q1** (a) The phytomedicine market has grown at an expressive rate worldwide since 1990's (from 5% to 18% a year). Discuss the factors that have contributed to the growth of this worldwide phytotherapeutic market. (5 marks)
- (b) Herbal medicine has many differences as compared to normal drug. Compare and contrast herbal medicine with well-defined synthetic drugs. (10 marks)
- (c) Pre-clinical study and clinical trial are often conducted for the discovery of new drug from natural product. Highlight and discuss in-depth the methodology or activity in the pre-clinical trial study. (10 marks)
- Q2** (a) List and discuss **FIVE (5)** important components in standardization of herbal product. (10 marks)
- (b) Imagine you are working as a herbal product developer in a herbal nutraceutical company. You are to design a nutraceutical herbal product that can be used as anti-cancer, anti-diabetic and anti-hypercholesterolemia. Propose medicinal plants that can be incorporated in your product and highlight major compounds that has the potential to show such effects. (15 marks)
- Q3** (a) Gout is a type of arthritis that causes painful inflammation in one or more joints.
- (i) Using a flowchart, simplify the catabolism of purine that cause the incidence of gout. (10 marks)
- (ii) List **FIVE (5)** plants that can be considered as having potent anti-gout potential. (5 marks)
- (iii) Propose the *in vitro* and *in vivo* study in order to evaluate the efficiency of herbal product as anti-gout agent. (10 marks)

TERBUKA

- Q4** (a) Herbal medicine is still considered as complementary and alternative treatment in medicine. Please elaborate the reason for this situation. (10 marks)
- (b) Many Malaysian herbs have been used traditionally to treat diabetes mellitus.
- (i) Propose **THREE (3)** plants that have been shown scientifically to display potent anti-diabetic potential. (6 marks)
- (ii) From you answer in **Q4(b)(i)**, highlight the major phytochemicals which might contribute to the anti-diabetic effects. (3 marks)
- (iii) From you answer in **Q4(b)(ii)**, recommend the mechanism of action on how each phytochemicals can act as anti-diabetic agents. (6 marks)

- END OF QUESTIONS -

TERBUKA