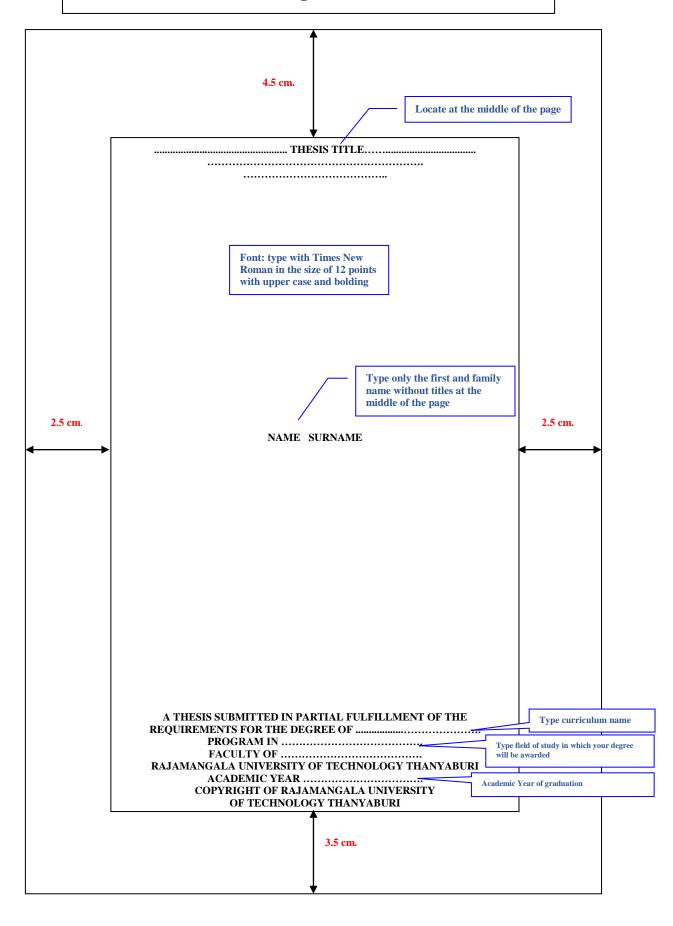
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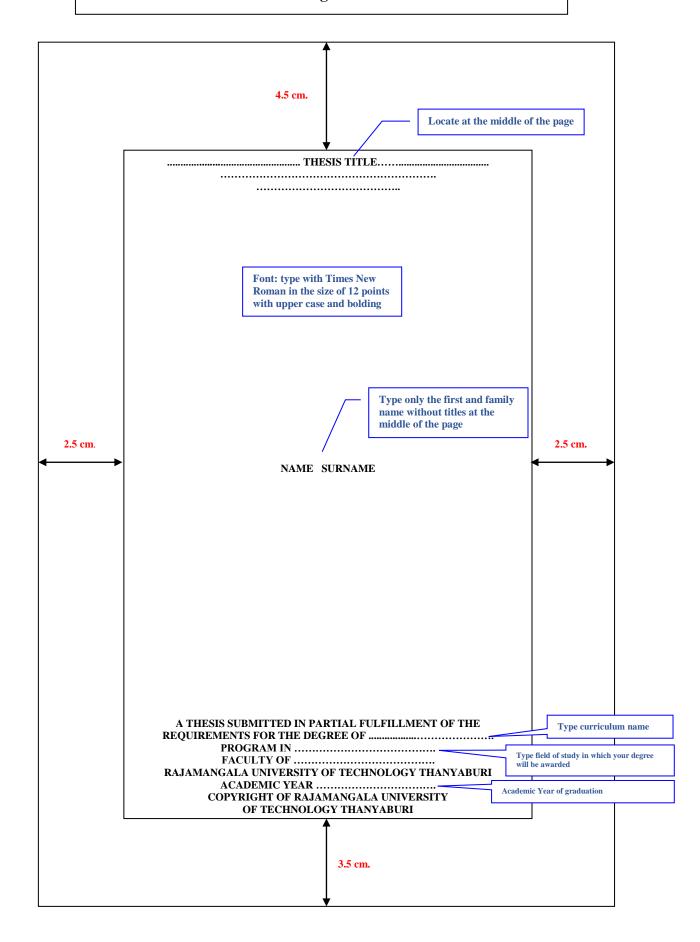
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THANYARAT NAKSING

A THESIS SUBMITTED IN PARTIAL FULLFILLMENT OF THE
REQUIREMENT FOR THE DEGREE OF MASTER OF SCIENCE
PROGRAM IN APPLIED BIOLOGY
FACULTY OF SCIENCE AND TECHNOLOGY
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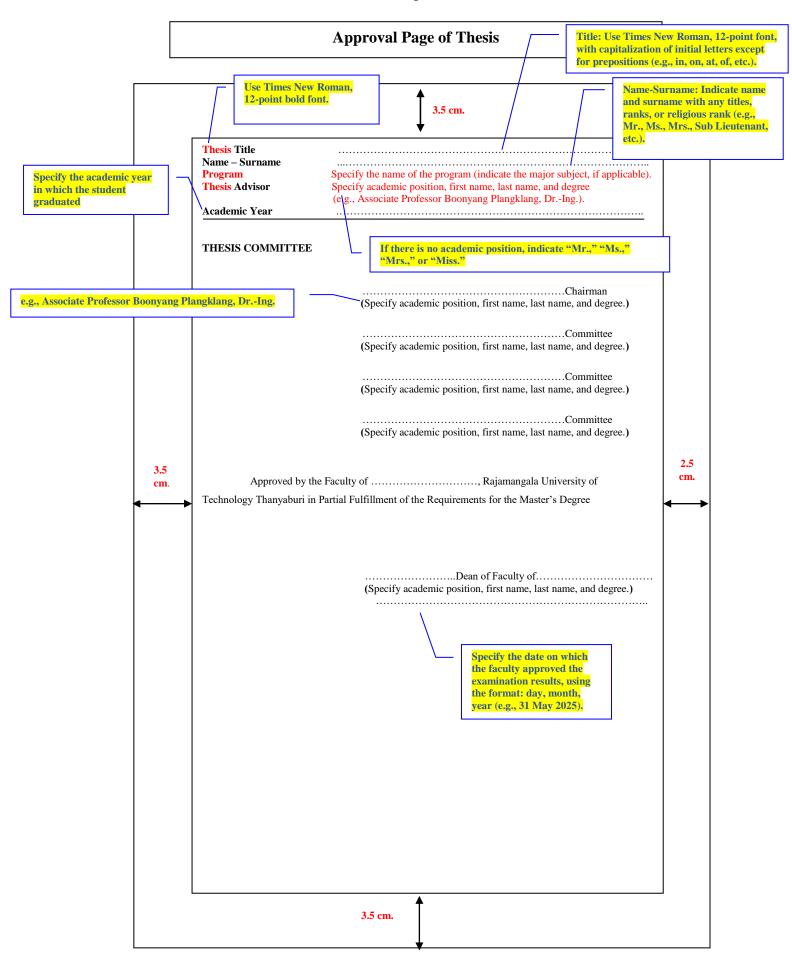
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PRAWN (MACROBRACHIUM ROSENBERGII)

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2020



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Immune Response of Giant Freshwater Prawn

(Macrobrachium rosenbergii)

Name - Surname Miss Thanyarat Naksing

Program Applied Biology

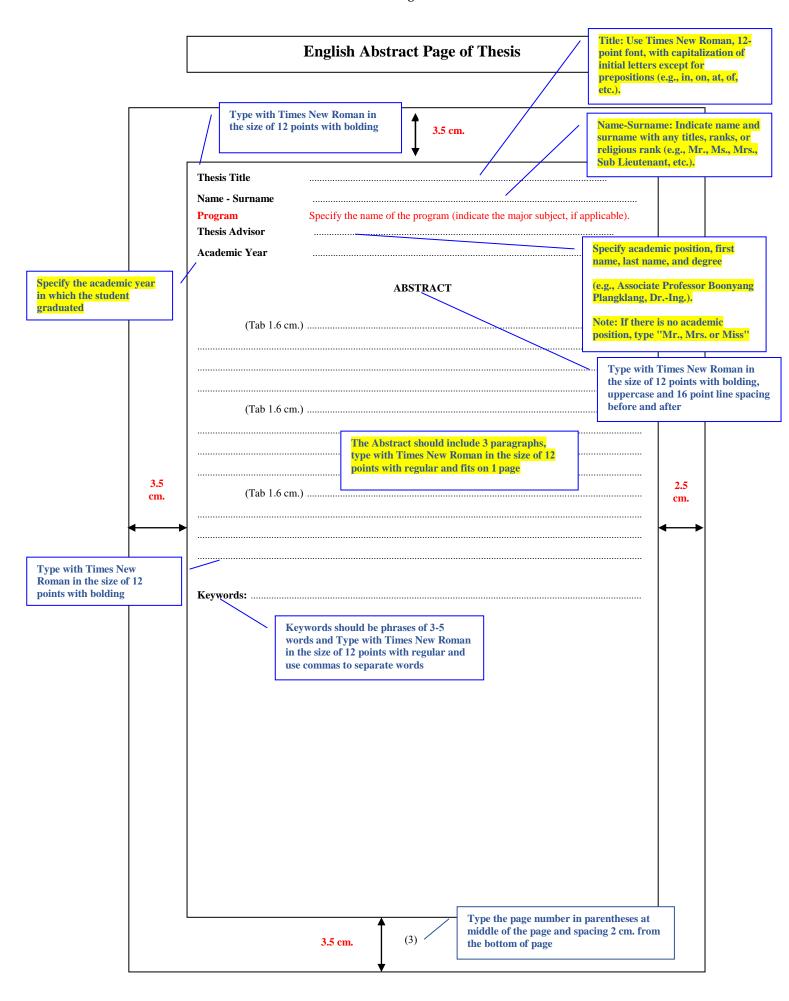
Thesis Advisor Mr. Atsadawut Areesirisuk, Ph.D.

Academic Year 2020

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Example of English Abstract Page of Thesis

Thesis Title Polyhydroxyalkanoates Production from *Novosphingobium* sp.

THA_AIK7 for Microcarrier Fabrication Using in Animal Cell

Culture

Name – Surname Miss Sasina Promdee

Program Applied Biology

Thesis Advisor Assistant Professor Jantima Teeka, Ph.D.

Academic Year 2023

ABSTRACT

This research aimed to: 1) investigate an appropriate carbon, nitrogen, and phosphorus source, 2) optimize the condition of PHA recovery using silica gel, 3) study the fabrication process of microcarriers by emulsion technique and 4) study the use of microcarriers in dynamic animal cell culture.

Novosphingobium sp. THA_AIK7 was cultured in a mineral salt medium (MSM) with various carbon, nitrogen, and phosphorus sources. Factor effecting PHAs extraction included temperature, loaded cell, and the amount of silica gel were analyzed using BBD. Fabrication of microcarrier from PHAs was designed using independent variables included PHA (mg), PVA (%), NH₅CO₃ (%), and stirrer (rpm). Fabricated microcarriers were tested for Vero and L929 cells culture.

Crude glycerol, MSG, and Na₂HPO₄·7H₂O were the best carbon, nitrogen, and phosphorus sources for growth and PHA production with a maximum PHA content of 27.54%. The highest HV monomer derived from crude glycerol was at 10.85 mol%. The extracted yield of PHAs from silica gel was 41 mg, accounting for 51.25% of CDW. The average diameter and average pore size of fabricated microcarriers MC-PHAs were 125.864 μm and 0.970 μm, respectively. The viability of Vero and L929 cells were 92% and 100%, respectively. PHAs can be fabricated into microcarriers and are not toxic to animal cells. However, the properties of MC-PHAs would be improved to enhance cell adhesion and proliferation in the next step.

Keywords: carbon, microcarrier, nitrogen, polyhydroxyalkanoates, phosphorus

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Acknowledgements

For this thesis, first of all, I would like to express my deepest gratitude to my advisor Dr. Atsadawut Areesirisuk for their brilliant instruction, encouragement, guidance, and always support throughout this thesis; without their kindness, this work could not be accomplished.

Second, I would acknowledge my co-advisor, Asst. Prof. Dr. Jantima Teeka and Dr. Wutti Rattanavichai for supporting their instruments (materials and prawns), encouragement, and always advise a suggestion.

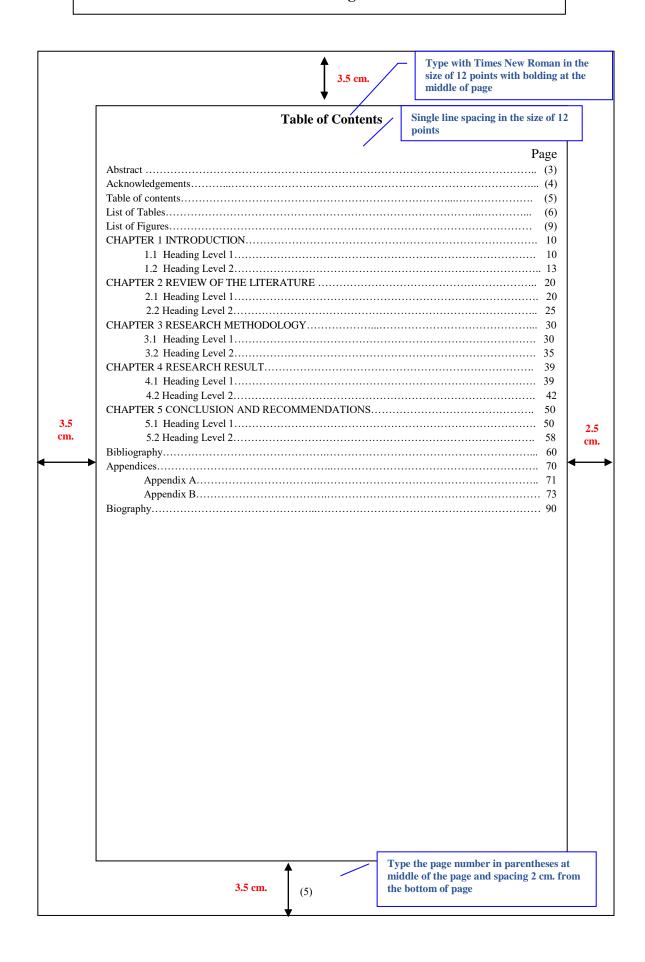
Third, I would like to thank also extended to Asst. Prof. Dr. Ratchaneegorn Mapanao and Asst. Prof. Dr. Nopparat Buddhakala for serving as a thesis president and committee, comment, and also suggestion.

Also, I would especially like to thank my committee members, Bioengineering Lab (ST-1 4 0 8), sisters and staff in Division of Biology, Faculty of Science and Technology, RMUTT and Department of Fisheries Technology, Faculty of Agricultural Technology, KSU, who always supported me throughout my study and experiment. Without their support this dissertation would not have been achievable.

Above all, I am especially thankful to my very important person in my life, my father, mother, and family, for always supporting everything, giving life, love, education, and driving power in life. They are the heart and my encouragement.

Thanyarat Naksing

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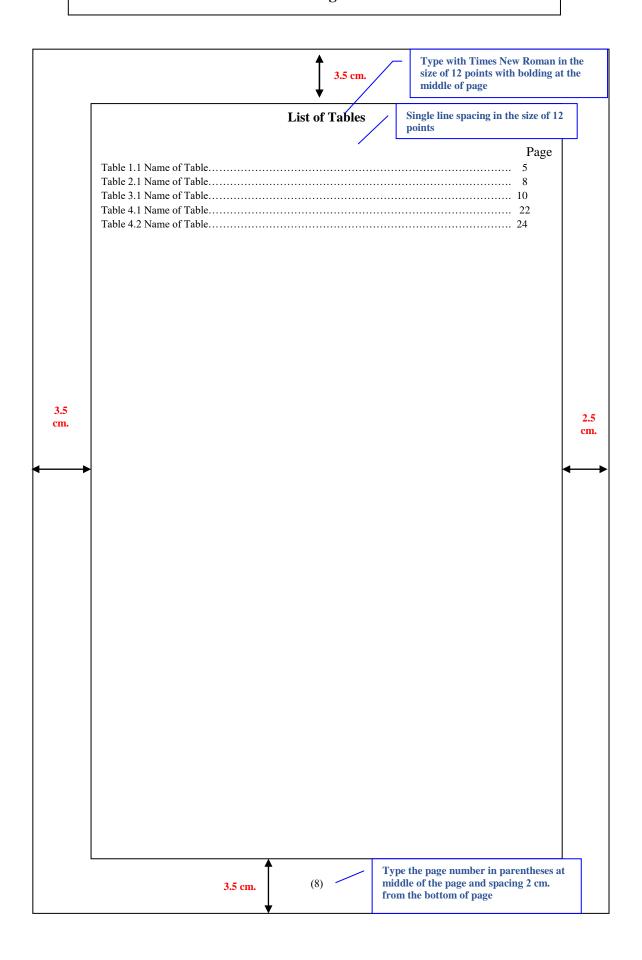
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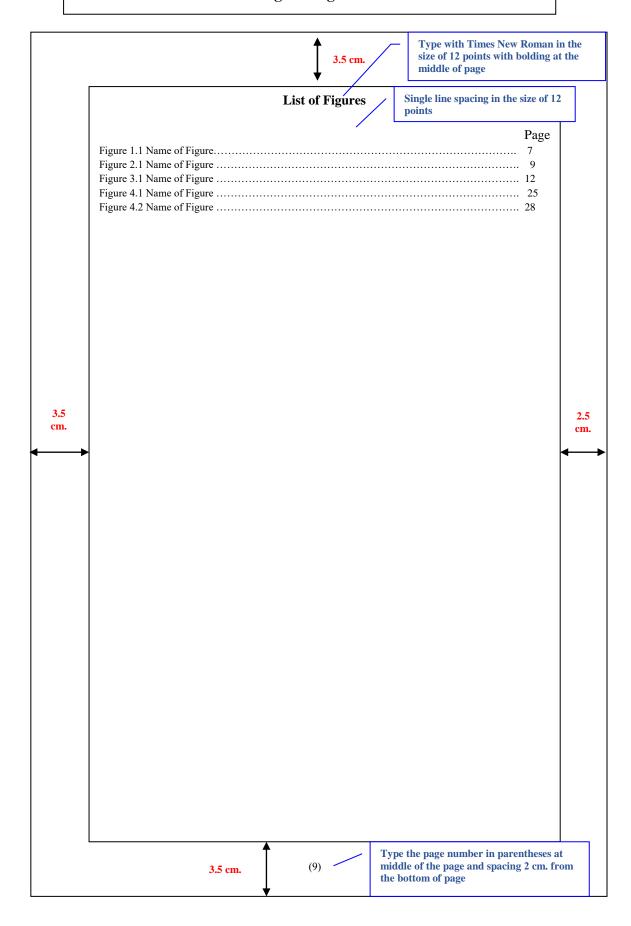


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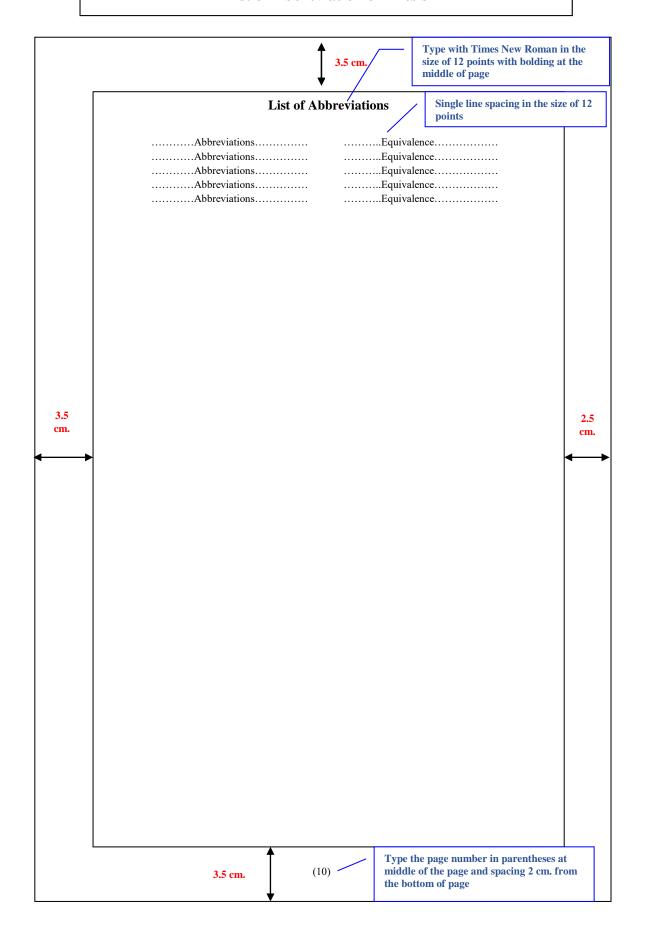


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Example of List of Abbreviation of Thesis

List of Abbreviations

ADPCM Adaptive Different Pulse Code Modulation

ANN Artificial Neural Network

CPU Central Processing Units

DMR Digital Mobile Radio

DSP Digital Signal Processing

FFT Fast Fourier Transform

FS1016 Federal Standard 1016

IP Internet Protocol

ITU-T International Telecommunications Union-Telecommunications

KBPS Kilo Bits Per Second

KSOFM Kohonen Self-organizing Feature Maps

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CHAPTER 1 INTRODUCTION

In modules and rings theory research field, there are three methods for doing the research. Firstly, to study about the fundamental of algebra and modules theory over arbitrary rings. Secondly, to study about the modules over special rings. Thirdly, to study about ring R by way of the categories of R-modules. Many mathematicians have concentrated on these methods.

1.1 Background and Statement of the Problems

1.2 Purpose of the Study

In this thesis, we have the purposes of study which are to extend concept of the previous works and to generalize new concepts which are :

- 1.2.1 To extend the concept of mininjective modules.
- 1.2.2 To generalize the concept of small principally quasi-injective modules.
- 1.2.3 To establish and extend some new concepts which are dual to small principally quasi-injective modules [18] and quasi-small principally-injective modules [19].

1.3 Research Questions and Hypothesis

We are interested in seeing to extend the characterizations and properties which remain valid from these previous concepts which can be extended from principally injective modules [2], principally-injective rings [7], mininjective modules [8], principally quasi-injective modules [9], small principally quasi-injective modules [18] and quasi-small principally-injective modules [19].

In this research, we introduce the definition of small simple quasi-injective modules and

1.4 Theoretical Perspective

In this thesis, we use many of the fundamental theories which are concerned to the rings and modules research. By the concerned theories are :

- 1.4.1 The fundamental of algebra theories.
- 1.4.2 The basic properties of rings and modules theory.

1.5 Delimitations and Limitations of the Study

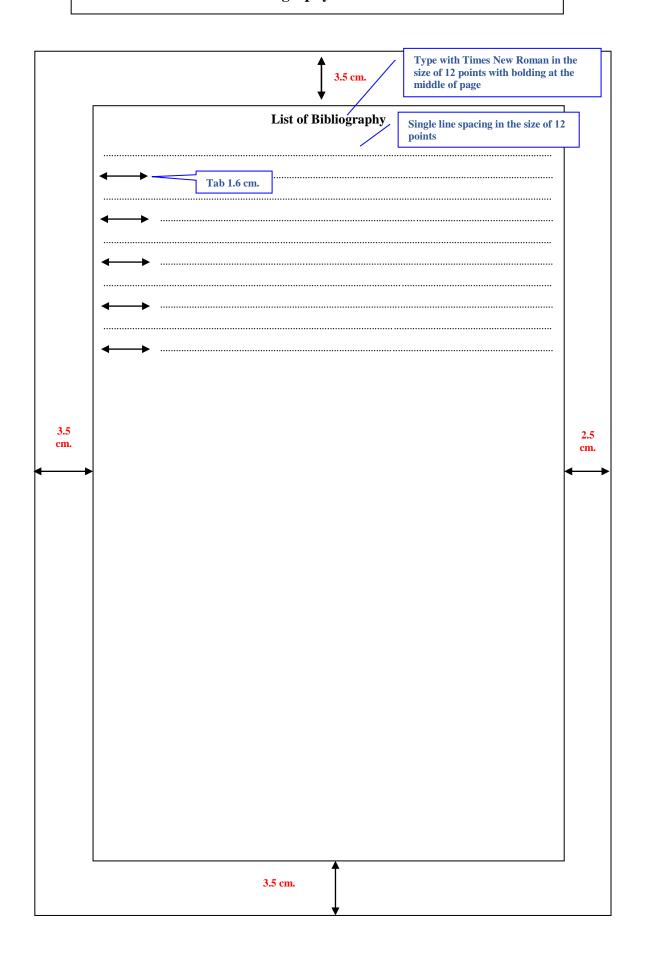
For this thesis, we have the scopes and the limitations of studying which are concerned to the previous works which are:

- 1.5.1 To extend the concept of mininjective modules.
- 1.5.2 To extend the concept of small principally quasi-injective modules and quai-small P-injective modules.
 - 1.5.3 To characterize the concept in 1.5.2 and find some new properties.

1.6 Significance of the Study

The advantage of education and studying in this research, we can improve and develop the concepts and knowledge in the algebra and modules research field.

Bibliography of Thesis



Example of Bibliography of Thesis (IEEE Referencing Style)

List of Bibliography

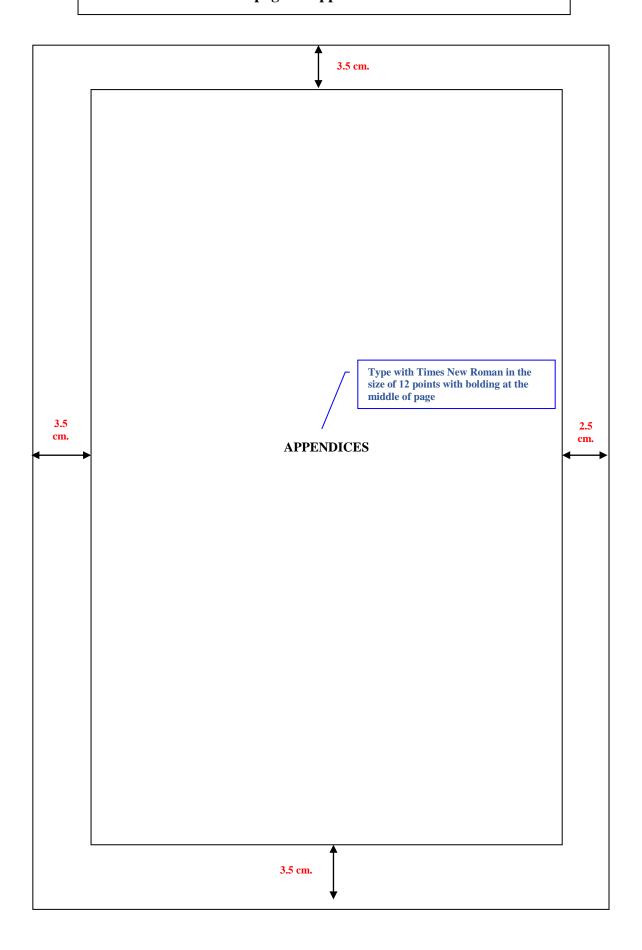
- [1] M. S. Sumona, F. Ahmmeda, S. S. Khushia, M. K. Ahmmeda, b. M. A. Roufa, Md. A. H. Chistya, and Md. G. Sarower, "Growth performance, digestive enzyme activity and immune response of *Macrobrachium rosenbergii* fed with probiotic *Clostridium butyricum* incorporated diets," *Journal of King Saud University Science*, vol. 30, no. 1, pp. 21–28, Jan. 2018
- [2] W. Rattanavichai and W. Cheng, "Effects of hot-water extract of banana (*Musa acuminata*) fruit's peel on the antibacterial activity, and anti-hypothermal stress, immune responses and disease resistance of the giant freshwater prawn, *Macrobrachium rosenbegii*," *Fish & Shellfish Immunology*, vol. 39, no. 2, pp. 326–335, Aug. 2014.
- [3] F. S. A. Amri and M. A. Hossain, "Comparison of total phenols, flavonoids and antioxidant potential of local and imported ripe bananas," *Egyptian Journal of Basic and Applied Sciences*, vol. 5, no. 4, pp. 245-251, Oct. 2018
- [4] B. Singh, J. P. Singh, A. Kaur, and N. Singh, "Bioactive compounds in banana and their associated health benefits A review," *Food Chemistry*, vol. 206, pp. 1–11, Sep. 2016.

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List of Bibliography

- Aaker, D. A., Kumar, V., & Day, G. S. (2001). *Market research*. New York, John Wiler and Sons.
- Abel, A. B., & Blanchard, O. J. (1986). *Investment and sales: Some empirical evidence*: National Bureau of Economic Research Cambridge, Mass., USA.
- Baier, C., Hartmann, E., & Moser, R. (2008). Strategic alignment and purchasing efficacy: an exploratory analysis of their impact on financial performance. *Journal of Supply Chain Management*, 44(4), 36-52.
- Barney, J. B. (1986). Strategic factor markets: Expectations, luck, and business strategy. *Management science*, 32(10), 1231-1241.
- Daugherty, P. J., & Pittman, P. H. (1995). Utilization of time-based strategies: creating distribution flexibility/responsiveness. *International Journal of Operations & Production Management*, 15(2), 54-60.
- Lee, H., & Choi, B. (2003). Knowledge management enablers, processes, and organizational performance: An integrative view and empirical examination. *Journal of management information systems*, 20(1), 179-228.
- Zhou, H., & Benton, W. (2007). Supply chain practice and information sharing. *Journal of operations management*, 25(6), 1348-1365.

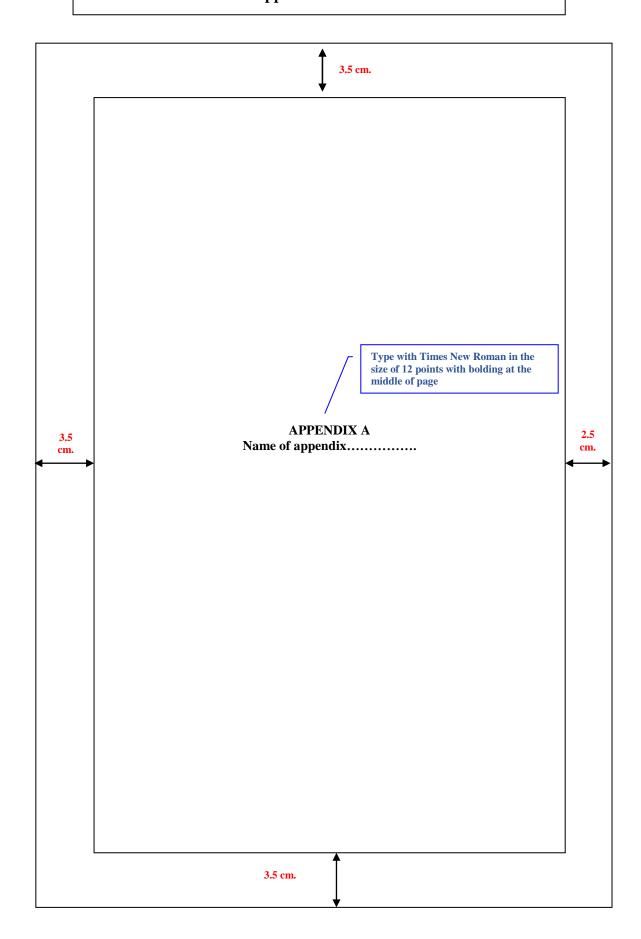
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APPENDICES

Appendix of Thesis



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APPENDIX A

Reagents for Preparation of Metacercariae

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Example of Biography of Thesis

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Education Master of Science (Applied Biology Program)

(2018-2020)

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