

EASTERN UNIVERSITY, SRI LANKA
SPECIAL DEGREE EXAMINATION IN CHEMISTRY
(FEB/MARCH' 2014)
FOURTH YEAR- FIRST SEMESTER-2009/2010
CHS 11- Biosynthesis

Answer all questions

Time: One hour

1. Answer all the parts (a), (b) and (c)

(a) What do you understand by the terms “primary metabolism” and “secondary metabolism”.

(15 marks)

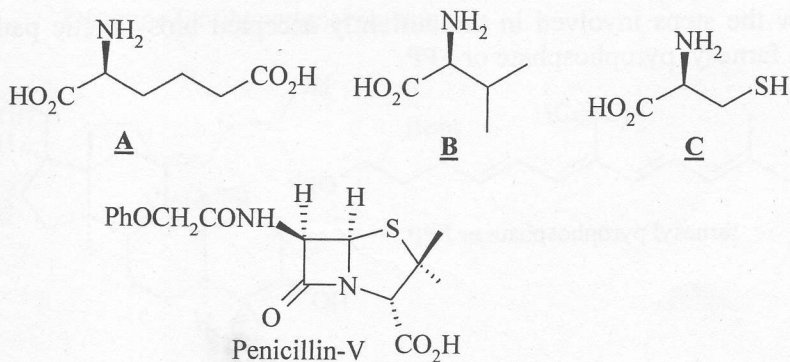
(i) Name three major pathways for biosynthesis of natural products.

(06 marks)

(ii) For each of the above pathways, give three classes of natural products as examples.

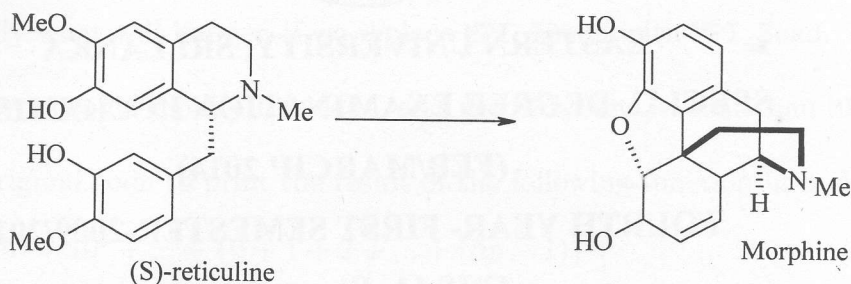
(09 marks)

(b) Penicillin-V is exclusively used for the treatment of pneumonia and other respiratory tract infections. Show the steps involved in the biosynthesis of **penicillin-V** from α -aminoadipic acid **A**, D-valine **B** and (*R*)-2-amino-3-mercaptopropionic acid(or cystine) **C**.



(30 marks)

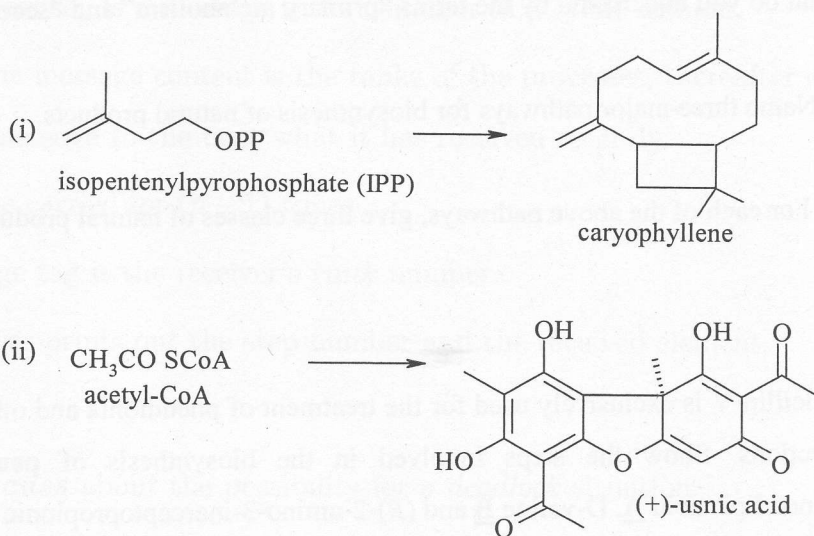
(c) Show the steps involved in the currently accepted biosynthetic pathway of **morphine** from S- reticuline.



(40 marks)

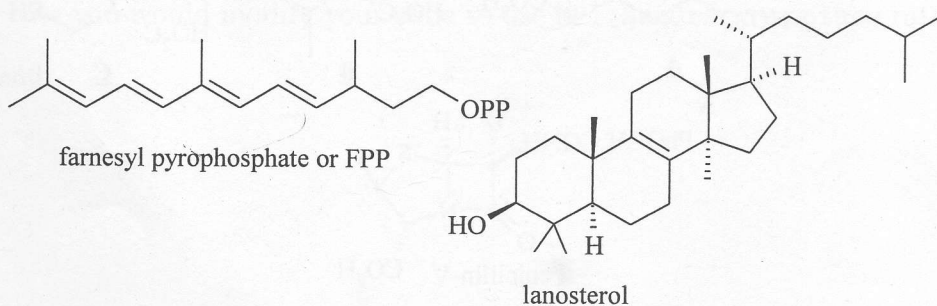
2. Answer **both** parts (a) and (b)

(a) Indicate how the following biosynthetic transformations may be effected (each of which may involve several steps).



(60 marks)

(b) Show the steps involved in the currently accepted biosynthetic path way of **lanosterol** from farnesyl pyrophosphate or FPP.



(40 marks)