

所別：生命科學系碩士班 分子與環境生物學組(一般生) 科目：生物化學I(含代謝) 共 2 頁 第 1 頁
生命科學系碩士班 分子與環境生物學組(在職生)

本科考試禁用計算器

*請在試卷答案卷(卡)內作答

Page 1 of 2

Part A - 配對填充題 - 下面有 20 個含有空格的句子。請為這些空格，分別找出其所對應的英文字母(列於此頁右方框格內)，使這些句子得以正確描述生化反應或現象。請將答案依題號順序，於答案卷內作答。每小題答對得 3 分，本大題共計 60 分。

1. _____ is used as carbon atom source which producing urea in the urea cycle.
2. Hydrolysis of maltose yields 2 _____.
3. Glycolysis leads to the production of 2 molecules of _____ and 2 molecules of ATP.
4. In the absence of O₂, fermentation leads to the production of _____.
5. _____ serves as the immediate precursor of urea in the urea cycle.
6. Acetyl-CoA carboxylase is activated by _____.
7. One and the only ATP requiring step in fatty acid degradation is catalyzed by _____.
8. During its degradation, a fatty acid with 14 carbon atoms will undergo _____ cycles of beta oxidation.
9. During its degradation, a fatty acid with 14 carbon atoms will produce _____ acetyl-CoA.
10. _____ is a direct inhibitor of carnitine acyl transferase I.
11. _____ is one of the key enzymes for utilization of ketone bodies.
12. Converting nitrogen to ammonia is a process known as _____.
13. The process for converting decaying biomass to ammonia is known as _____.
14. In nitrogen assimilation process, _____ is an enzyme catalyzing the condensation of glutamate and ammonia to form glutamine.
15. Histidine is degraded to α -ketoglutarate and is described as a _____ amino acid.
16. Lysine is degraded to acetoacetyl-CoA and is described as a _____ amino acid.
17. Oxidative deamination is the conversion of an amino acid to a keto acid plus _____.
18. Transaminase enzymes are present in _____.
19. In the normal breakdown of phenylalanine, it is initially degraded to _____.
20. _____ is an amino acid that cannot be synthesized by human, and therefore must be part of our diet. In plants, this amino acid functions as a biochemical precursor for phytohormone auxin.

- | | |
|-----|----------------------|
| A. | 6 |
| B. | 7 |
| C. | 8 |
| D. | arginine |
| E. | ammonia |
| F. | ammonification |
| G. | carbon dioxide |
| H. | citrate |
| I. | denitrification |
| J. | fumarate |
| K. | glucogenic |
| L. | glucose |
| M. | glutamate synthase |
| N. | glutamine synthetase |
| O. | hemiacetal |
| P. | hemiketal |
| Q. | intestine |
| R. | ketogenic |
| S. | keto-gluco |
| T. | lactic acid |
| U. | liver |
| V. | lycopene |
| W. | lysine |
| X. | malonyl-CoA |
| Y. | nitrification |
| Z. | nitrification |
| AA. | nitrogen fixation |
| BB. | ornithine |
| CC. | pancreas |
| DD. | propionyl-CoA |
| EE. | pyruvate |
| FF. | scetyl-CoA |
| GG. | thioesterase |
| HH. | thiokinase |
| II. | thiolase |
| JJ. | tryptophan |
| KK. | tyrosine |
| LL. | xanthophylls |

注意：背面有試題

參考用

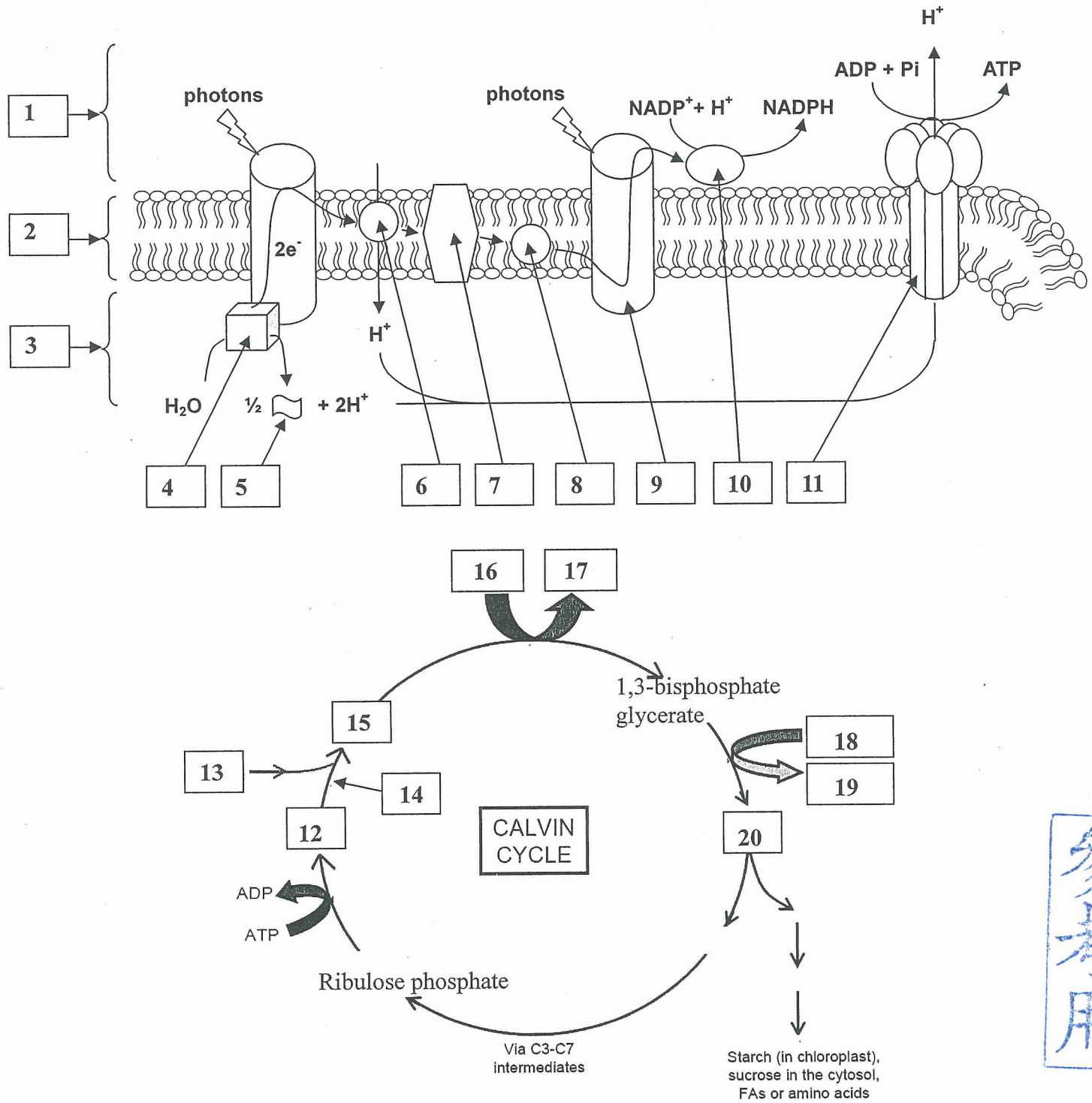
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Part B - 下面為光合作用光反應與暗反應的圖解。請為圖中方格內的數字(1至20)，分別找出其所對應的英文字母(列於此頁下方)，使圖解得以完整。請將答案依數字順序，於答案卷內作答。每小題答對得2分，本大題共計40分。



參考用

- | | | |
|--------------------------------|----------------------------|------------------------------|
| A. ADP | J. mesophyll | S. photosystem II |
| B. ATP | K. NADP ⁺ | T. plastocyanin |
| C. ATP synthase | L. NADPH | U. plastoquinone |
| D. carbon dioxide | M. oxygen | V. rubisco |
| E. cytochrome b ₆ f | N. oxygen evolving complex | W. ribulose-1,5-bisphosphate |
| F. ferredoxin-NADP reductase | O. PEP carboxylase | X. stroma |
| G. glyceraldehydes 3-phosphate | P. phosphoenol pyruvate | Y. thioredoxin |
| H. granum | Q. phosphoglycerate | Z. thylakoid membrane |
| I. lumen | R. photosystem I | |

注意：背面有試題