

1. 請解釋下列名詞 (20 %)

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| 1. Holocellulose | 2. Cellobiose | 3. Mutarotation |
| 4. Pyranose | 5. Protolignin | 6. Aglycone |
| 7. Delignification | 8. Anomers | 9. Tropolone |
| 10. Phenoxy radicals | | |

2. 請將下列空白處填入正確英文詞彙 (17 %)

Sound wood is a complex mixture of large organic polymers, mainly cellulose, hemicelluloses, and lignins. Cellulose is a single unbranched polysaccharide. It's a polymer of the six-carbon reducing sugar, ①. The next major constituent of wood are the hemicelluloses, which make up about 25% of the tissue mass. Hemicelluloses, composed mainly of ②, ③, ④, ⑤, and ⑥, have molecular chains that are often branched, there are about 100 to 200 sugar residues per molecule. Lignins are made from three cinnamyl alcohol, — ⑦, ⑧, and ⑨. They differ from each other in the number of ⑩ substituted on the benzene ring. Gymnosperm lignin is made up principally of ⑪ (⑫ lignin) whereas angiosperm lignin is made up from approximately equal amounts of ⑬ and ⑭ (⑮ / ⑯ lignin). ⑰ is found principally as a precursor to the lignin of grasses and in reaction wood.

3. 纖維素(Cellulose)可以用許多化學方法改良而擴展其用途，請列舉並說明這些纖維素化學衍生物。又由化學反應之觀點著眼，從事纖維素化學衍生物反應時應考慮那些事項？請簡要說明之。(18 %)
4. 請問木材中常見的抽出成分(Wood extractives)種類有哪些？請加以分類說明之。(15 %)
5. 何謂不飽和聚酯塗料(Unsaturated polyester)？其塗膜乾燥的方式有哪兩種？又此種塗料之特性為何？(15 %)
6. 請陳述紙張之製造流程。(15 %)