

FEDERAL UNIVERSITY OF TECHNOLOGY, OWERRI
SCHOOL OF HEALTH TECHNOLOGY
DEPARTMENT OF DENTAL TECHNOLOGY

2014/2015 SESSION HARMATTAN SEMESTER EXAMINATIONS

DNT 403 Science of Dental Materials II (2 units) Time Allowed: 2hrs Date: 21/04/2015

INSTRUCTIONS: Attempt all questions in section A. each question attracts 2 marks

1. The term solution hardening in an alloy system means.....
2. A metalloid is.....give examples
3. Define grain boundary as applied to alloy system.
4. Identify four methods of forming and shaping alloys.
5. Alloys that are formed by metals which are mutually soluble in all proportions in both the liquid and solid state are called.....
6. The variation in the composition of each grain from the central primary dendrites outwards is termed.....
7. With the aid of sketch diagram, identify the two types of solid solution in alloy system.
8. Mention three methods of extraction of metals from their ores.
9. Draw the cooling curves of a metal and alloy
10. Spot welding is defined as.....
11. What is a scavenger? Give examples.
12. What do you understand by a refractory material? Give example.
13. Silica exists in four allotropic forms. Name them.
14. Another name for 18/8 stainless steel alloy is called.....
15. Define weld decay. How can it be avoided?
16. The combination of Manganese, silicon and iron plays the role of.....in CoCr alloy.
17. What is an emulsifier? Give example of a material it is associated with.
18. Define an antirflux.
19. Why is chromium important in stainless steel and cobalt chromium alloys?
20. What is intermetallic compound? Give examples.

Section B attempt two questions only. Each question attracts 15 marks

1. (a). What is soldering? (b). Highlight the principles of soldering in dental laboratory. (c). List the properties of a good solder.
2. (a). Highlight the aims of alloying. (b). Classify alloy according to solubility. (c). How does the concept of a system relate to alloys in dental technology?
3. (a). Define flux. Give the properties of a flux. (b). discuss the factors affecting the grain size and structure of metals/alloys.
4. a. how can chromium cobalt be liquefied? b. give the constituents and functions of stainless steel alloy.