

UNIVERSITY OF BOLTON

FACULTY OF HEALTH AND WELLBEING

BSc (HONS) DENTAL TECHNOLOGY

SEMESTER TWO EXAMINATION 2022/2023

**INTRODUCTORY DENTAL BIOMATERIALS
SCIENCE**

MODULE NO: DNT4105

Date: Friday 12 May 2023

Time: 10.00 am – 12.00 noon

INSTRUCTIONS TO CANDIDATES:

There are 15 questions on this paper.

Answer ALL questions.

Marks for parts of questions are shown in brackets.

There are a total of 100 marks available.

The pass mark is 40%.

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1. Describe why external surfaces of a dental appliance are commonly polished to a high value.

6 marks

2. The polymerisation process reacts in a set order. Place the terms below in the correct order.

a) Propagation b) Activation c) Termination d) Initiation

2 marks

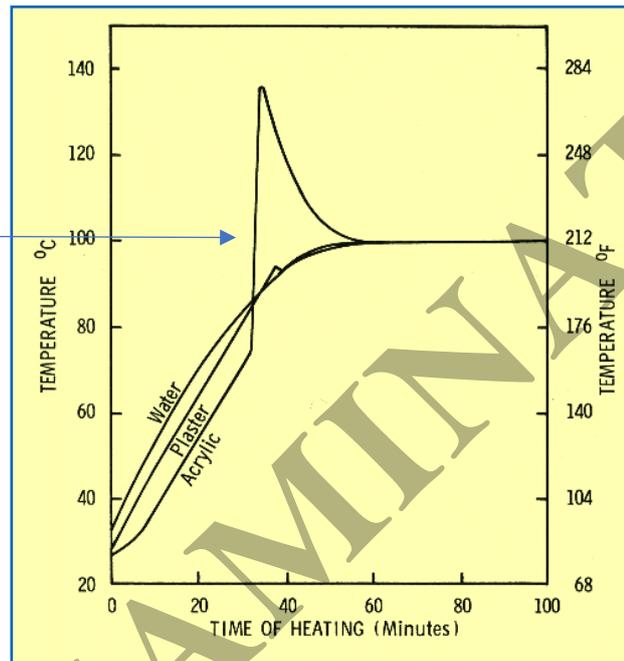
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3. Consider the chart below.

C



a) What does the chart show?

(2 marks)

b) What is the average exothermic rise in temperature for this material?

(1 mark)

c) What is the significance of the temperature indicated by the arrow?

(1 mark)

d) Explain why the management of this exothermic reaction is critical in producing a correctly polymerised material.

(4 marks)

Total 8 marks

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4. What are the advantages of using heat cured poly-methyl methacrylate?
6 marks
5. Why are cold cured acrylics used for denture repairs?
3 marks
6. What are the common constituents present in the dental acrylics and what is their purpose?
12 marks
7. What are the health concerns linked to methyl methacrylate?
5 marks
8. Describe the curing methods that are used to cure poly-methyl methacrylate used in dental acrylics.
16 marks
9. Name common constituents of dental porcelains and the properties they provide to the material.
6 marks
10. With the aid of a diagram, describe how sintering of ceramics is carried out by the dental technician and the effects on the dimensions of the fired restoration.
12 marks
11. What are the methods of compaction when building ceramic restorations?
4 marks
12. Name four properties associated with dental ceramics.
4 marks

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13. What are the benefits of using Zirconia Oxide in comparison to metal ceramics?

6 marks

14. Explain the 3 bonding mechanisms employed to fuse ceramics to metal?

9 marks

15. True or False – Dental Ceramics have high compressive strength?

1 mark

END OF QUESTIONS

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