

**UNIVERSITY OF BOLTON**  
**QUEENS DENTAL SCIENCES CENTRE**  
**BSc (HONS) DENTAL TECHNOLOGY**  
**SEMESTER TWO EXAMINATION 2024/2025**  
**DENTAL TECHNOLOGY TECHNIQUES FOR FIXED**  
**PROSTHODONTICS**  
**MODULE NO: DNT5103**

Date: Monday 12 May 2025

Time: 10.00 am – 12.00 noon

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**INSTRUCTIONS TO CANDIDATES:**

There are 13 questions on this paper.

Answer ALL questions.

There are a total of 100 marks available.

The pass mark is 40%.

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1. Implants

Fixed implant restorations may be cement retained or screw retained. When might the use of cement retention be indicated for fixed implant restorations?

**8 marks**

2. Suggest six reasons for utilising a diagnostic wax-up as part of the restorative process.

**6 marks**

3. Study the image below of maxillary posterior metal-ceramic restorations.



(Leixir, N.D)

a) Why might a metal occlusion have been incorporated in this design?

**(3 marks)**

b) When incorporating a metal backing or occlusal surface into metal-ceramic restoration design, what should be considered when positioning the metal-ceramic junction?

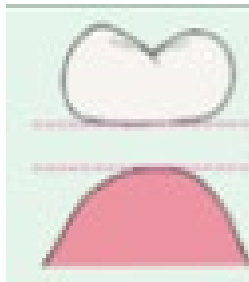
**(1 mark)**

**Total 4 marks**

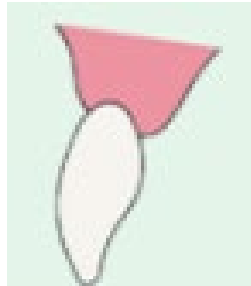
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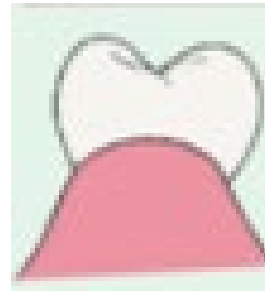
4. Study the images below. Identify each of the pontic designs.



A



B



C

**3 marks**

5. Give four examples of materials which are currently available for use in Computer Aided Manufacture of fixed dental restorations.

**4 marks**

6. Consider emergence profile in relation to restoration design. Outline the potential positive impacts of a well-designed emergence profile.

**6 marks**

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7. Bridges and Connectors

- a) Suggest four indications for bridge provision.  
(4 marks)
- b) When designing any bridge connector, what should be considered?  
Provide a rationale for your answer.  
(4 marks)
- c) Explain why the span of a bridge is considered when selecting an alloy for  
bridge manufacture.  
(2 marks)
- d) Give a brief description of a fixed-movable non-rigid connector bridge.  
(4 marks)
- e) State the advantages of a fixed-movable non-rigid connector bridge.  
(8 marks)

**Total 22 marks**

8. Proximal contacts

- a) What issues may result from an excessively tight or heavy proximal  
contact?  
(7 marks)
- b) True or false? Where proximal contacts are more buccally placed the  
lingual embrasure will be larger than the buccal embrasure.  
(1 mark)

**Total 8 marks**

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9. Veneers

- a) Suggest four indications of veneer use, giving an example for each indication.

(8 marks)

- b) Name the four types of preparation design commonly used for veneers.

(4 marks)

**Total 12 marks**

10. Marginal integrity and accurate circumferential fit are key to restorative success. Suggest six issues which may result from poorly adapted margins.

**6 marks**

11. Suggest three reasons why precision attachments may be incorporated in fixed restoration designs.

**3 marks**

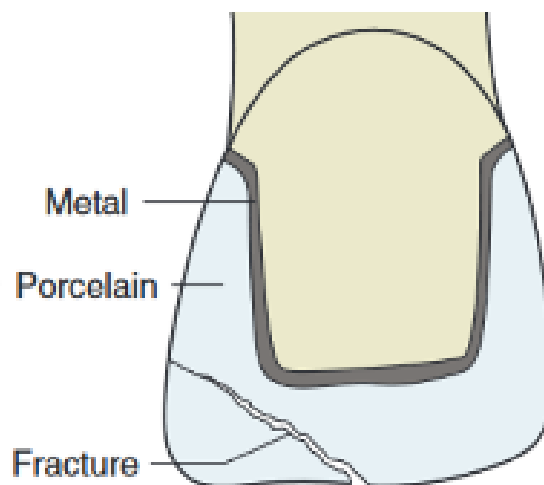
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12. Metal Ceramic restorations.

- a) Study the image below. Identify the design issue presented which has resulted in fracture of the layering ceramic.

(2 marks)



(Rosenstiel., et al 2015)

- b) Summarise how this issue may have been overcome in practice when designing and manufacturing the restoration.

(3 marks)

- c) A patient requires a crown on an anterior maxillary tooth where aesthetics are of high demand. Why may the use of metal-ceramic be contradicted?

(3 marks)

**Total 8 marks**

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13. Composites

- a) Fibre-mesh reinforcement may be utilised to increase the strength of composites and allow their use in bridge provision. What else may be incorporated into the restoration design to improve strength and allow use in bridge-work?

(1 mark)

- b) Suggest a material related complication that may contradict the use of indirect composites in the restorative process for some patients.

(1 mark)

- c) What issues are associated with the polymerisation of indirect composites?

(4 marks)

- d) Suggest four possible applications for indirect composite restorations

(4 marks)

**Total 10 marks**

**END OF QUESTIONS**