UNIVERSITY OF BOLTON

FACULTY OF HEALTH AND WELLBEING

BSc (HONS) DENTAL TECHNOLOGY

SEMESTER TWO EXAMINATION 2022/2023

DENTAL TECHNOLOGY TECHNIQUES FOR FIXED PROSTHODONTICS

MODULE NO: DNT5103

Date: Friday 12 May 2023 **Time: 10.00 am – 12.00 noon**

INSTRUCTIONS TO CANDIDATES:

There are 17 questions.

Answer ALL 17 questions in this paper.

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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Answer All Questions in This Paper (100 marks)

1.
Study the image below presenting the distal view of a composite inlay.

(Zarrati & Mahboub, 2010)

a)
Identify the manufacture defect presented in the restoration.

(1 mark)

b)
List 5 potential issues this defect may lead to.

(5 marks)

Total 6 marks

2.
You are manufacturing a metal-ceramic crown with a palatal collar. What are the design requirements of the metal-ceramic junction and collar?

5 marks

3. Summarise the importance of ensuring a supportive substructure when designing metal ceramic restorations, and what this means for substructure design.

5 marks

4. What is described in the following statement? ‘Aids in determining realistic possible outcomes for the patient, helps to visualise possible treatment outcomes, and helps in producing temporary restorations.’

1 mark

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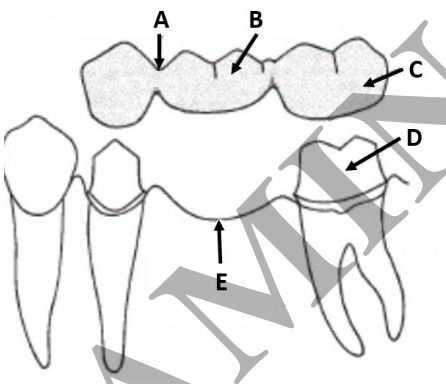
5. A patient has a single tooth missing and requires a restoration, why might a 2-unit cantilever bridge be selected rather than a 3-unit fixed-fixed bridge?

1 mark

6. Study the image below.



(Shillingburg et al., 2020)

a) Name each of the 5 lettered elements.

(5 marks)

b) Provide a description/purpose for each of the 5 elements.

(5 marks)

Total 10 marks

7. List 4 contraindications for veneer use as a restorative option.

4 marks

8. Why are shorter axial preparation walls less desirable than long walls?

2 marks

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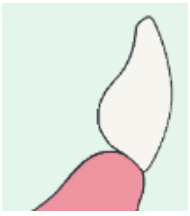
9. Pontic design is a key element of bridge design.

   a) Identify the pontic design pictured below.

   (1 mark)



(Rosenstiel et al., 2015)

   b) Identify the pontic design pictured below.

   (1 mark)

(Rosenstiel et al., 2015)

   c) Which classification do the above two pontic designs fall into?

   (1 mark)

   d) Which of the two designs is considered to have superior aesthetics?

   (1 mark)

Total 4 marks

10. Consider emergence profile in relation to restoration design.

   a) Outline the potential positive impacts of a well-designed emergence profile.

   (6 marks)

   b) Outline the potential negative impacts of poor emergence profile design.

   (7 marks)

Total 13 marks

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11. Bridge design.

a) Describe the bridge design/pontic position in each of the following cases:
- Fixed-fixed rigid connector bridge.
- Fixed-movable non-rigid connector bridge.
- Minimum preparation bridge.
- Cantilever bridge.

(8 marks)

b) Outline 5 advantages associated with a fixed-movable non-rigid connector bridge design.

(5 marks)

c) When designing any bridge connectors what should be considered? Provide a rationale for your answer.

(4 marks)

Total 17 marks

12. Study the image below showing a metal-ceramic bridge with palatal metal backings. Suggest 3 possible reasons for this framework design.

3 marks

(Wilson, 2011)

13. Suggest 7 advantages of using implants in fixed prosthodontics.

7 marks

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14. Knowledge of dental morphology is key to restoration design. Study the images below. Identify the permanent tooth pictured, including tooth type and quadrant.

3 marks

15. Indirect composite restorations.

a) When using indirect dental composites suggest two additions which could be made to allow their use in the provision of a fixed dental bridge. Justify your answer.

(3 marks)

b) Suggest 5 advantages displayed by indirect composites.

(5 marks)

c) Suggest 4 disadvantages displayed by indirect composites.

(4 marks)

Total 12 marks

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16. Precision attachments may be incorporated in fixed restoration designs.

a) Identify three advantages associated with rod and tube/slide attachments.

(3 marks)

b) Now consider the images below showing a ball and socket precision attachment. Suggest 2 advantages that the ball and socket attachment has that the rod and tube attachment lacks.

(Nature Dental Laboratory, 2014)

(2 marks)

Total 5 marks

17. Demonstrate your knowledge of manufacture by providing an example where conventional and digital manufacturing techniques are combined in the production of fixed restorations, explain your answer.

2 marks

END OF QUESTIONS