UNIVERSITY OF JOHANNESBURG

FACULTY ART DESIGN AND ARCHITECTURE

2014 November

Main Assessment

DEPARTMENT OF INTERIOR DESIGN

MODULE NAME	:	Theory of Materials and Finishes 2
MODULE CODE	:	ITM211/IDMF1B2
DATE	:	5 November 2014
DURATION	:	3 Hours
TIME	:	8:30 – 11:30 pm
TOTAL MARKS	:	180

ASSESSOR(S)	:	Mr. A. Gill
MODERATOR(S)	:	Mrs I. Prinsloo
NUMBER OF PAGES	:	5

INSTRUCTIONS TO CANDIDATES:

ANSWER ANY **SIX** OF THE FOLLOWING SEVEN QUESTIONS
FOR A TOTAL OF 6 X 30 = 180 Marks

- Read the questions carefully and answer only what is asked.
- Number your answers clearly.
- Write neatly and legibly.
- Use sketches if necessary to clarify answers.
- The general University of Johannesburg policies, procedures and rules pertaining to written assessments apply to this assessment.

QUESTION 1

1.1	Name **five** thermoplastic polymers commonly used in the manufacture of building products or finishes.	5
1.2	Describe the properties and molecular structure of **elastomeric** polymers.	5
1.3	Describe the common properties and/or characteristics that any building product or finish made from **thermosetting** polymers will display.	5
1.4	List **five** forming methods suitable for forming thermoplastic polymers.	5
1.5	How will the properties of a polymer change if it is 'foamed'?	3
1.6	Many plumbing components, which were traditionally made from earthenware, cast iron or galvanised steel are now made from plastic. Describe some of the benefits that have been gained from this application of plastic, for both plumber and the end user.	7

[30]

QUESTION 2

2.1	What are some of the properties of a material's surface that can be changed or altered with the application of a paint coating?	6
2.2	Describe the **four** basic types of binders (or bases) used in the manufacture of paints and give the common name for each type.	8
2.3	What points need to be determined **before** paint can be correctly specified?	8
2.4	Name three 'additives' that could be used to change the properties of a paint.	3
2.5	List the components that make up a typical paint mixture.	5

[30]

QUESTION 3

3.1 Explain how the principle of 'surface wetting' contributes to the theory of adhesion. 6

3.2 When choosing an adhesive for any application which factors must always be considered? 4

3.3. Explain why it is necessary to use mastic, with the aid of a sketch clearly indicate a typical situation where it would be critical to use a mastic in an interior. (Please label all components). 6

3.4 Explain the formulation and application of a 'twin-pack' adhesive. 5

3.5 What is meant when an adhesive is said to have 'gap filling' properties? 3

3.6 Give **two** examples for each of the following adhesive types:
3.6.1 Hot melt adhesives. 2
3.6.2 Adhesives in solution form. 2
3.6.3 Self cross-linking adhesives. 2

[30]

QUESTION 4

4.1 What do the following abbreviations stand for regarding decorative laminates?
4.1.2 HPL 1
4.1.3 CPL 1
4.1.4 MFB. 1

4.2 Describe the basic common manufacturing processes and materials used for the manufacture of all grades of decorative laminates. 10

4.3 What are some of the characteristics of laminates that make them such a useful surfacing material for interior design applications? 7

4.4 List some of the construction considerations that have to be taken into account in order to prevent laminates from failing. 5

4.5 Explain what is meant by the term 'Post-formed' laminate and give **one** typical example of its use. 5

[30]

QUESTION 5

5.1	Explain what benefits can be achieved from blending fibres.	3
5.2	What tests are done to determine the durability of a contract fabric?	7
5.3	Name **five** types of functional finishes that may be applied to fabrics in order to improve their durability.	5
5.4	What are the benefits that may be obtained from specifying a modular carpet as opposed to a broadloom fitted carpet?	8
5.5	Describe how an **Axminster** carpet is manufactured and the resulting pile and patterning opportunities.	5
5.6	Name two non-woven methods used to produce carpeting.	2

[30]

QUESTION 6

6.1	Describe how the float glass method of manufacture has improved the properties of architectural glass.	5
6.2	**Laminated** and **Toughened** glass are both regarded as safety glass, yet differ greatly. Compare these two glasses with regard to: Safety and security performance Manufacture Application	15
6.3	Explain what is meant by the following terms relating to glazing:	
6.3.1	'Solar Control' glazing.	3
6.3.2	Obscure glass.	3
6.4	Name **four** methods used to apply pattern onto the surface of glass.	4

[30]

QUESTION 7

7.1	In the absence of any definitive definition of a 'green material', what criteria should be met in order for a material to be considered as 'environmentally friendly'?	10
7.2	Describe how the 'life cycle analysis' is implemented in order to determine the environmental impact of a building material.	10
7.3	Explain why it is incorrect to assume that all natural materials will have less of an environmental impact than synthetic ones. You may refer to examples to support your answer.	10

[30]

THE END