

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2018

BIO MATERIALS AND PROSTHETIC DEVICES

[Time : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. Define biocompatibility.
2. Define thermoplastic.
3. Define prosthetic device.
4. State the term orthotic device.
5. Define glaucoma.

(5 × 2 = 10)

PART — B

(Maximum marks : 30)

II Answer any *five* of the following questions. Each question carries 6 marks.

1. Describe the components of dental implant.
2. Explain the structure and properties of polyamides.
3. Distinguish homograft and heterograft.
4. Explain Goldmann applanation tonometer.
5. Elaborate the host response to biomaterial.
6. Describe the properties of composites.
7. Explain the biological requirements of hip prosthesis.

(5 × 6 = 30)

PART — C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

UNIT — I

- III (a) Explain different fracture fixation devices.
(b) Elaborate tissue response to biomaterial.

OR

- IV (a) Explain the composition and properties of Co based alloy.
(b) Describe the properties of stainless steel implant material.

UNIT — II

- V (a) Explain polymeric implant material and their requirements.
(b) List the application of composites.

OR

- VI (a) Describe biodegradable polymers and their applications.
(b) Distinguish natural and synthetic rubber.

UNIT — III

- VII (a) Elaborate Dwyer's technique for correction of scoliosis.
(b) Explain the components of hip prosthesis.

OR

- VIII (a) Explain different types of artificial heart valves.
(b) Describe knee joint prosthesis.

UNIT — IV

- IX (a) Explain Schiötz tonometer with diagram.
(b) Explain pedobarograph with clinical application.

OR

- X (a) Elaborate MacKay Marg indentation tonometer with diagram.
(b) Describe foot switch gait analysis.
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