

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

BIOMATERIALS 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. Give any two types of metallic biomaterials.
2. What is polymerisation ?
3. What is PMMA ? Give any one property of PMMA ?
4. What is heterograft ?
5. Define IOP.

(5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Describe pedobarograph.
2. Give an account on synthetic rubber ? Give its applications.
3. Define biomaterials and list the requirements of biomaterials?
4. Describe the materials used for
(a) tilting disc heart valve (b) caged ball heart valve
5. Discuss the material response to biomaterials.
6. Draw and label total hip joint replacement prosthesis.
7. Write a note vascular implants.

(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 the composition and properties of stainless steel alloys. Mention its applications.
(b) Explain the host response to biomaterials.

OR

- IV (a) Explain the composition and properties of cobalt based alloys.
(b) Describe various dental implants.

UNIT — II

- V (a) Explain polyamide, its structure, properties and applications.
(b) Explain composites and its properties.

OR

- VI (a) Describe a biodegradable polymer. Mention its applications.
(b) Explain the structure and properties of polyolefins.

UNIT — III

- VII (a) Explain knee jointprosthesis with a neat diagram.
(b) Explain the Milwaukee brace used for the correction of scoliosis.

OR

- VIII (a) Explain wheel chairs and its types.
(b) List and explain different types of crutches used in medical field.

UNIT — IV

- IX (a) Explain Goldman's applanation tonometer with a neat diagram.
(b) Explain in detail gait analysis.

OR

- X (a) Explain Schiotz impression tonometer.
(b) Describe the foot switches for gait analysis.
-