

B.E. Seventh Semester (Biomedical Engineering) (CGS)  
**10136 : Artificial Organs and Rehabilitation Engineering: 7 BM 02**

P. Pages : 2

Time : Three Hours



AU - 2927

Max. Marks : 80

- Notes :
1. All question carry equal marks.
  2. Answer **three** question from Section A and **three** question from Section B.
  3. Assume suitable data wherever necessary.
  4. Illustrate your answer necessary with the help of neat sketches.
  5. Use of pen Blue/Black ink/refill only for writing the answer book.

**SECTION - A**

1. a) Explain the flowing properties of blood in details. 6  
b) Explain biomaterials used in artificial organs and prostheses and their properties. 7

**OR**

2. a) Write a short note on: 6  
i) Inflammation ii) Blood viscosity  
iii) Hematocrit  
b) Explain extracorporeal blood flow in detail. 7
3. a) Write a short note on: 9  
i) Artificial Limb ii) Ophthalmoscope  
iii) Communication disorders  
b) Explain the process of audiometry in detail. 5

**OR**

4. a) Explain I.A.B.P. principle and its application. 7  
b) Define Hearing aids and explain the types of hearing aids. 7
5. a) Explain the blood interfacing implants and give its example. 7  
b) Write a note on: 6  
i) Maxillofacial implants ii) Vascular prostheses

**OR**

6. a) Explain total artificial hearts and its application. 7  
b) Explain about the difference types of eye and ear implants. 6

**SECTION - B**

7. a) Difference between Mechanical valves and Biological valves with its example. 8  
b) Explain in detail about tissue valves & give its application with their example. 6

**OR**

8. a) Write a note on: 9  
i) Regional patency ii) Synthetic grafts  
iii) Graft infections  
b) Define Biological Heart valve? Explain its types. 5
9. a) Explain the working of Hemodialysis machine with neat labelled block diagram. 9  
b) Explain the functions of kidney. 5

**OR**

10. a) Explain the artificial oxygen carrier using fluorocarbon. 7  
b) Explain in detail fluid and solute removal. 7
11. a) Explain in detail. 8  
i) Liver functions ii) Hepatic failure  
b) Explain in detail about artificial skin. 5

**OR**

12. a) Explain in details the tracheal replacement devices and laryngeal replacement devices.  
b) Explain design principles for permanent skin replacement.

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