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Question Paper Code: 57B02

Seventh Semester

Biomedical Engineering

15UBM702 - HUMAN ASSIST DEVICES

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. A blood pump will able to pump the blood upto CO1- R
(a) 6 liters/minute (b) 5 liters/minute (c) 6.5 liters/minute (d) 4 liters/minute
2. The blood is pumped into lungs through CO1- R
(a) Right Ventricle (b) Left Atrium (c) Right Atrium (d) Left Ventricle
3. Which of the following process is involved in urine formation? CO2- U
(a) Filtration (b) Secretion (c) Reabsorption (d) All of the above
4. The dialysing time of haemodialysis is CO2- R
(a) 3 to 6 hours (b) 3 to 5 hours (c) 4 to 6 hours (d) 3 to 4 hours
5. Which part of the ear is affected due to prolonged exposure to noise? CO3- R
(a) Middle ear (b) Inner ear (c) External ear (d) None of the above
6. The Voice box is also called as CO3- R
(a) Bronchi (b) Trachea (c) Pharynx (d) Larynx
7. The material used for prosthesis is CO4- R
(a) Carbon fiber (b) Plastic (c) Titanium (d) Aluminium
8. Which of the following represents the person's hearing disability? CO4- R
(a) Phonocardiogram (b) Audiogram
(c) Electroencephalogram (d) Electrooculogram

9. The arm of robot is called as CO5- R
 (a) End effector (b) Manipulator (c) Controller (d) Sensor
10. Identify the application of medical robot CO5- R
 (a) Sanitation (b) Rehabilitation (c) Transportation (d) All the above

PART – B (5 x 2= 10 Marks)

11. Define Pulsatile pump. CO1- R
12. Compare haemodialysis and peritoneal dialysis. CO2- U
13. Classify the types of deafness. CO3- U
14. List some sensory assist devices. CO4- R
15. Distinguish between flexion and extension. CO5- App

PART – C (5 x 16= 80 Marks)

16. (a) Explain the types of oxygenators with neat diagram. CO1- U (16)
 Or
 (b) Classify and explain the types of Heart Intra-Aortic Balloon Pumping. CO1- U (16)
17. (a) Explain the principle, operation and types of haemodialyzer. CO2 U (16)
 Or
 (b) Discuss the operation of wearable artificial kidney in detail. CO2 U (16)
18. (a) Illustrate the operation sequence of Intermittent Positive Pressure Breathing Unit. CO3- U (16)
 Or
 (b) Explain the construction and functional characteristics of different hearing aids. CO3- U (16)
19. (a) Explain in detail about externally powered limb prosthesis. CO4- U (16)
 Or
 (b) Discuss the Haptic technology system and its applications. CO4- U (16)
20. (a) Point out the clinical applications of medical robots. CO5- App (16)
 Or
 (b) Discuss the functions of robotic arm accessories in medical field. CO5- App (16)