

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2025

B.Tech-VIII Semester (Open Elective)

COURSE CODE (CREDITS): 24B1WPH831 (03)

MAX. MARKS: 25

COURSE NAME: Biomaterials

COURSE INSTRUCTORS: Ragini Raj Singh

MAX. TIME: 1 Hour 30 Min

*Note: (a) All questions are compulsory.*

*(b) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems.*

*(c) Candidate is allowed to use calculator.*

Q.No	Question	CO	Marks
Q1	With respect to chemical properties of biomaterials discuss (i) Solubility and erosion (ii) Leaching of constituents (iii) Corrosion	CO2	1.5 x 3=4.5
Q2	With respect to thermal properties of biomaterials discuss (i) Thermal diffusivity (ii) Coefficient of thermal expansion (iii) Strengthening of materials by thermal treatments	CO3	1.5 x 3=4.5
Q3	(a) With respect to surface properties of biomaterials, discuss importance of surface behavior in the field.  (b) Also, explain which parameters must be measured to define surface structure with appropriate diagrams.	CO3	1.5  3
Q4	(a) What is contact angle method? Provide equation, which describes force balance with description of all the parameters.  (b) How on the basis of contact angle results wetting characteristics of a surface described.	CO4	3  1.5
Q5	Give information of various applications of metals in hard tissue replacements.	CO4	2
Q6	Discuss osseointegration with the help of diagram.	CO4	2
Q6	Discuss two case studies for minimization of corrosion in biomaterials.	CO4	3