

COLLEGE OF ENGINEERING, PUNE
End Semester Examination 2010
F.Y. B. Tech. (AS 105)- (Living Machines)

Day & Date- Tuesday/November 16, 2010
Timing- 10.00 to 13.00

Max. Marks- 50
Duration – 03 hrs

MODEL ANSWER

04

Q.1 A Fill in the blanks with appropriate answer and rewrite the sentence

1. physicians & engineers 2. hydraulic & organic
3. ion, porins/aquaporins 4. lungs & bone

B 1.C 2.D 3.B 4.A 5.D 6.C

03

C Match

03

Monoclonal	--	Hybridoma
Sub cellular	--	Cell fractionation
Direct mani.....	--	RDT
Purification	--	Biofiltration
DNA duplexes	--	Hybridization
Life time	--	Confocal

Q.2 A Support the following sentences with appropriate reasons (any 4) 04

1. a. sticky 5' end of 12 bases, large non essential region,
2. Processing large amount of biodata, saving-retrieving-analysis of biodata, extracting information from biodata
3. Hydrolic enzymes, digest essential organelles also
4. Minimum drag resistance, easy movement
5. Interleukin 6,8, serum amyloid, fibrinogrn, troponin
6. Chlorophyll not req., req. enzymes-cofactors-coenzymes present

B. Dia. $\frac{1}{2}$, any correct 5 labels $\frac{1}{2}$ mark each 3

C.

1. Plastic, Elastic, Elastoplastic – any 2
2. Doctors, therapist, engineering, companies, designers
Trainers
3. Advantages – compact, less energy, high BOD removal
Disadvantages – Foul odour, sludge disposal, skilled person
4. Uses of MRI---- any 4
All tissues, brain, spinal cord, tumors, heart defects, joints, kidney, liver
, spleen

03

Q. 3 A Define the following terms (Any 8)

04

Plasmids -- extra chromosomal DNA in prokaryotes
Transducers – detects change by bio.. product, transform signal....
Bioremediation—use of micro org.... pollution control
Kinematics—movement wrt time & space
Genome – chromosomal & extrachomosomal DNA in mito., chloro..
Database mining – database utilization
Gene farming – gene transfer into animals for large scale production of
desired proteins
Bioinstrumentation -- appli. Electro., measurement principles, tech. to
develop devices fo diagnosis & treat.... Of disease
Stem cells – renew by mitotic div. & differentiate into variety of cells

B Differentiate the following with minimum two points (any 3)

03

1. X ray and MRI – ionizing radiation, angle, detail, difference –
Normal & abnormal
2. Aerobic treatment and anaerobic treatment of waste water – open-
closed, aeration, agitation
3. Piezoelectric and thermometric biosensor –bio. Compo. Ab-enzyme,
detect—explo., narco., insect., pesti. –seerum cholesterol
4. Plant and animal cell

C Write notes on any three of the following

03

1. Clinical engineering -- Clinical engineering is the application of
technology for health care in hospitals. The clinical engineer is a
member of the health care team along with physicians, nurses and other
hospital staff. Clinical engineers are responsible for developing and
maintaining computer databases of medical instrumentation and
equipment records and for the purchase and use of sophisticated medical
instruments. They may also work with physicians on projects to adapt
instrumentation to the specific needs of the physician and the hospital.
This often involves the interface of instruments with computer systems
and customized software for instrument control and data analysis.
Clinical engineers feel the excitement of applying the latest technology