SARDAR PATEL UNIVERSITY
First Year B.Physiotherapy Examination
Tuesday, Date 07-01-2014
Time 10:30 a.m. to 1:30 p.m.
Subject: **Bio-medical Physics & Computer Applications**

N.B.:-
(i) There are **THREE** sections in this paper.

(ii) Figures to the right indicate full marks of the respective questions

Section – II(Marks 30)

Q.2 **(a)** Discuss in detail different levers and combination of pulleys.   7

     (b) State Archimede's principle. Explain about excess pressure in   8
spherical liquefied drop with appropriate equations.
OR
Q.2 **(a)** Define black body and obtain relation for Kirchoff's law of heat   7
radiation.

     (b) What is Laplace correction ? Discuss effect of temperature,   8
pressure, density of medium, humidity and wind on velocity of
sound in air.

Q.3   Answer each of the following (**5 x 3 = 15**)   15

     (a) Define simple machine, mechanical advantage and efficiency.

     (b) Write different properties of thermal radiations.

     (c) What is Doppler effect ?

     (d) State laws of reflection and refraction.

     (e) Name the radiations used in medical applications.

Section III (Marks 30)

Q.4 **(a)** What is LASER ? Discuss about ruby laser and state biomedical 8
applications of LASER.

(b) State and discuss different therapeutic currents. 7

OR

Q.4 **(a)** Write short note on induction coil and coil rotating in magnetic 8
field.

(b) How is PN junction formed ? Explain characterisitics of PN 7
junction diode in forward and reverse bias.

Q.5 Answer each of the following (**5 x 3 =15**) 15

(a) Explain electromagnectic induction and distinguish between self
and mutual inductance.

(b) Define galvanic, faradic, and surging currents.

(c) Explain four different possible ways in which we can bias
transistor(i.e. two PN junctions)

(d) Explain briefly zener diode.

(e) State different regions of electromagnetic spectrum.

****************************THE END********************************