UNIVERSITY COLLEGE LONDON

University of London

EXAMINATION FOR INTERNAL STUDENTS

For the following qualification:

B.Sc. (Intercal) M.Sc.

Health Sciences
C114: SKELETAL TISSUE REMODELING, REPAIR, REGENERATION

COURSE CODE	:	**HESCC114**
UNIT VALUE	:	**0.50**
DATE	:	**20 May 2002**
TIME	:	**10. 00 am**
TIME ALLOWED	:	**3 hours**

02-CO699-3

TURN OVER

Health Sciences
C114: SKELETAL TISSUE REMODELING, REPAIR, REGENERATION

Answer **FOUR** out of **EIGHT** questions (20 marks for each answer)
Answer **EACH** question in a **SEPARATE ANSWER BOOK**
Use diagrams to illustrate your answers where possible

1) As an extremely busy hospital based consultant write a report on the effects of degeneration of articular cartilage and its impact on quality of life. You are also asked to recommend strategies based on scientific evidence to reduce incidence and impact of this disease on the health service.

2) The Ministry of Health has asked for recommendations on regimens for prevention of osteoporosis. Write an evidence based account on the current knowledge of, and your recommendations for prevention of osteporosis.

3) As a Consultant in Sports Medicine, you see a large number of sport's injuries involving tendons and ligaments especially load bearing tendons. Write an account of the differences in tendon matrix composition in load bearing vs non-load bearing tendons, and what effects would you expect mechanical stimuli to have on matrix composition.

4) As a surgeon specializing in Hands, you see a large number of injuries requiring secondary tendon grafts causing donor site morbidity. Ideally, you would prefer to have a piece of tissue-engineered tendon. What would you want in a "perfect" tissue-engineered piece of tendon, and describe the strategies you would employ to engineer it.

5) Consider yourself to be a resident cell within a bone and describe the cellular processes in which you would be involved in remodelling and modelling matrix from a cellular point of view.

6) Write an account of the functional adaptation and regeneration of bone in close proximity to prosthetic implants. What are the advantages and disadvantages of prosthetic implants in current use? Define the conditions for an "ideal" lifelong osseomechanical integration of a prosthetic implant in a long bone.

7) What factors contribute to damage and degeneration of the intervertebral disc? Describe the functional effects of intervertebral disc degeneration.

8) As an ageing skeleton describe the age and sex related changes you would undergo placing particular emphasis on long bones.

END OF PAPER