



کراچی یونیورسٹی  
**University of Karachi**  
Department of Mathematics  
MATH 725 • Anthromathematics I

Time Allowed: 2 hours • Maximum Marks: 80 • Date: Wednesday, December 24, 2014 • Paper Format: A

Student's Name \_\_\_\_\_ (in CAPITAL LETTERS using a "marker")

**Attempt all Questions.** Each part of **Question 1** is of 4 marks and that of **Questions 2-4** is of 10 marks. Note down the time spent on solving each part of question and time spent on revision by making the following "Time Chart" on the answerbook front page (**2 marks**). Time spent on revision must be at least 10% of the total time.

| Question No.   | 1a | 1b | 1c | 1d | 2 | 3 | 4 | Revision |
|----------------|----|----|----|----|---|---|---|----------|
| Time (minutes) |    |    |    |    |   |   |   |          |

a) DO NOT TURN PAPER AROUND unless the invigilator says: *Start now*

b) This is a closed-book examination. Deposit all BOOKS, NOTES, MOBILE PHONES (switched off), DIGITAL DIARIES and LAPTOPS in the designated area. Remove everything from your desk, except markers, pens, pencils, stapler and calculator.

c) If you want to use a calculator, **it must bear a "sticker"** displaying your NAME and your SEAT NUMBER, large enough so that it is visible from a distance of 5 meters. **Absolutely, NO sharing of calculators.**

d) Use your own material. **Nothing can be borrowed from or given to** a friend.

e) The papers may be of different formats. Therefore, work on your own **without consulting anyone** (We have a record of your seating arrangement).

f) Write your "NAME" on all pages of **your question paper** (5 marks shall be deducted for failing to comply) [NOTHING ELSE SHOULD BE WRITTEN ON THE QUESTION PAPER] and "PAPER FORMAT" on the front page of **your answerbook** (the upper-right-hand corner) and **the Yellow Sheet** using a "marker". Start your work from **Page 2** of your answerbook. The only thing that could be written on the front page is the "Time Chart" (see above) and the "Honor Statement" (see below).

g) The following statement must be copied on the front page of your answerbook and signed (**2 marks**): "My signatures, below, testify that I am the person, whose name and photograph appear on the Admit Card. Upon my honor, I declare that the following work is my own, completed without giving or receiving unacknowledged help, without copying, or the use of any unfair means." Signatures \_\_\_\_\_

h) This paper contains TWO PAGES (this page and the back page). On invigilator's signal (*Start now*) turn the paper around, check if you have the back page printed, correctly. Last line of the second

page reads: <END>. Start working on the paper, immediately.

i) Put your pens down and your papers turned (so that this page is facing you) and the FRONT PAGE of your answerbook should be facing you as soon as you hear "ALL PENS DOWN". Failure to do as directed shall result in "deduction of 5 marks" from your score.

j) If you use extra copies, it is "your responsibility" to write YOUR NAME, COPY NUMBER and all OTHER INFORMATION on each copy used. All the extra copies must be stapled with the main copy, before turning in your paper (you may wish to bring in a stapler with you for this purpose).

k) If you have a question of "Fill in the blanks" in your paper you must write the complete sentence with the filled word underlined.

l) Nobody is allowed to leave the examination hall, **for whatsoever reason**, once the examination has started. Bring your own DRINKING WATER.

m) Students are not allowed to LEAVE THEIR SEATS or STAND UP during the examination. If you have a query, "raise your hand" and someone will help you.

n) All work, including rough work, must be on the official answerbook. No extra sheet may be used.

o) Students are *not* allowed to use RED anywhere. All work (except figures) must be in pen or ballpoint.

p) The result shall be displayed on my homepage on **Monday, January 5, 2015 at 0900h**. DO NOT contact the Course Supervisor. Students are not permitted to see the answerbooks.

q) Anyone found cheating in the examination should be facing disciplinary action, which may result in **EXPLUSION** or **SUSPENSION** for 2 or more years as per University of Karachi rules. **Absolutely, no conversation among students. DON'T TURN THE PAPER, YET. Wait for "signal" from the invigilator.**

Student's Name \_\_\_\_\_ (in CAPITAL LETTERS using a "marker")

- 1-a) List the first four countries, which are topping the list of obesity, with percentage of obese people in each one.
- 1-b) What do the following abbreviations stand for?  
i) WHO • ii) BMI • iii) NGDS • iv) SGPP
- 1-c) Give name of 4 diseases, which could be caused by vitamin-D deficiency.
- 1-d) Tolerance levels set for statuses (pertaining-to-mass) and (pertaining-to-height) are \_\_\_\_\_ (0, 1, 2) percent. According to the paper, 'Stunting Induced by Wasting — Wasting Induced by Stunting: A Case Study'. A child, who is tall and obese may have \_\_\_\_\_ (*under-nutrition, over-nutrition, energy-channelization problem*), wasted and tall may have \_\_\_\_\_ (*under-nutrition, over-nutrition, energy-channelization problem*), stunted and wasted may have \_\_\_\_\_ (*under-nutrition, over-nutrition, energy-channelization problem*), obese and wasted may have \_\_\_\_\_ (*under-nutrition, over-nutrition, energy-channelization problem*)
- 2-a) For the following female child (SGPP-KHI-20110412-01/01: NGDS-BLA-2010-5484/A) [date of birth = 2005-06-16, date of measurement = 2014-11-23, height = 136.56 *cm*, height of father = 178.20 *cm*, height of mother = 170.78 *cm*], compute the following: age in the form YYYY-MM-DD, age in decimal form, height in *ft –in*, mid-parental height in *cm*, mid-parental height in *ft –in*
- 2-b) The above child was weighed in dress code = 0/0.5. Her gross mass came out to be 33.06 *kg*. Software computed her estimated-adult height and estimated-adult mass as 164.77 *cm* and 62.34 *kg*, respectively. Compute the following: net mass in *lb-oz*, estimated-adult height in *ft-in*, estimated-adult mass in *lb-oz*, *BMI*, estimated-adult *BMI*
- 3) Write short notes on any TWO of the following:
  - a) The NGDS Pilot Project
  - b) Estimated-Adult BMI
  - c) Behavior Code in Physical Examination
- 4-a) Who launched the original concept of *BMI* and when? (2 marks) When was the name changed to *BMI* and by whom? (2 marks) Give the strengths (3 marks) and the drawbacks (3 marks) of *BMI* as indicator of obesity?
- 4-b) What is the meaning of dress code? (1 mark). In mathematics 0/0 is indeterminate, illustrate it. (1 mark). However, 0/0 dress code is permissible. Explain. (1 mark) What is meant by dress code 0/0.5? (1 mark) Give 3 reasons each to elaborate why the maximum dress code allowed for measurement of children's heights (3 marks) and masses (3 marks) is 0/0.5.

Web address of this document: [http://www.ngds-ku.org/M725-6/Exams725-6/725-14\\_Paper.pdf](http://www.ngds-ku.org/M725-6/Exams725-6/725-14_Paper.pdf)  
(to be uploaded 12 hours after the conclusion of examination)

Exam paper solution: **First class of Math 726 (Anthromathematics II)**