



کراچی یونیورسٹی
University of Karachi
Department of Mathematics
MATH 725: Anthromathematics I

Time Allowed: 2 hours • Maximum Marks: 50 • Date: Thursday, February 21, 2013 • Paper Format: A

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

Attempt all questions. Each part of Question 1 is of 7 marks and that of Questions 2-5 is of 4 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	2a	2b	3a	3b	4a	4b	5a	5b	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 **Thursday, February 28, 2013 at 0900h**. DO NOT contact the Course Supervisor. Students are not per-mitted 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. **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")

TERMINAL

- 1-a) List 4 long-term effects of obesity as described by Ludwig.
- 1-b) Correlation model of growth was put forward by _____ (*Karlberg, Whittaker, Argyle*). If percentile of height of an individual lies below 3, and that of mass above 97, status (pertaining-to-mass) is not determinable. _____ (*correct, incorrect, not enough information to make a decision*). Children are, generally, _____ (*shorter, taller, same*) in the evening as compared to early morning. Tolerance levels set for statuses (pertaining-to-mass) and (pertaining-to-height) are _____ (0, 1, 2) percent.
- 1-c) In the following table we have dates of check up for a child. Compute her age at each check up in decimal form, using the date of birth given (note that each month has different number of days, leap year has 29 days in February):

AZ	Year-Month-Day
Date of Birth	1995-08-22
First Check-up	2002-02-06
Second Check-up	2003-01-29

- 1-d) What are the meanings of stunting, wasting, failure-to-grow and failure to thrive?
- 2) Describe box interpolation. What are the two routes followed for calculations. Which route is preferable?
- 3) Compute the obesity profile of the following female (SGPP-KHI-20090329-01) [height = 160.2 cm; gross mass = 89.7 kg; clothing correction = 1.0 kg, date of birth = 1970-03-22, date of checkup = 2009-03-29], using the height and weight data:

Percentiles	3	5	10	25	50	75	90	95	97
Height (cm)	151.50	152.50	154.75	159.00	163.50	167.50	172.50	174.00	175.25
Mass (kg)	45.25	46.50	48.25	52.25	55.25	66.00	75.25	82.50	88.75

- 4) Write short notes on any TWO of the following:
- a) Depression in married females b) Anthromathematics
- c) Childhood marriages: social implications

MIDTERM

- 5) What are the main features of KJK model, distinguishing it from KFA?
- 6) Write down the steps in measuring mass (weight) of a child. How would you correct for the main source of error, variation in the type and the amount of clothing worn by the child? What is the highest level of accuracy with which mass of a person could be measured? When was this achieved and where?
- 7) Determine, which of these indices — status (pertaining-to-mass), status (pertaining-to-height) and BMI — can be worked out or their upper or lower limits be calculated, for the cases given below:
- a) $P(\mu) < 3$, $P(h) > 97$, mid-parental height not given
- b) $P(\mu) > 97$, $3 \leq P(h) \leq 97$, $P(h_{MP}) < 3$
- c) $3 \leq P(\mu) \leq 97$, $P(h) < 3$, $P(h_{MP}) > 97$

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