

**GGH1503** ( 497652)  
**GGH103S** ( 478505)

May/June 2012

**OUR LIVING EARTH**

Duration 2 Hours

100 Marks

**EXAMINERS**  
FIRST  
SECONDMR DW HEDDING  
MS SC NENWIINI

This examination question paper remains the property of the University of South Africa and may not be removed from the examination venue

This examination paper consists of 13 pages plus instructions for the use of a mark-reading sheet

**IMPORTANT:**

- A After answering this examination paper, you should hand in the following
- One mark-reading sheet for section A Place the mark-reading sheet in the front of your examination book
  - Your examination book with your answers to section B
- B Make sure that your student number and all the other required information are written on your examination book and on the mark-reading sheet Note that the **unique number** of the examination paper for GGH1503 differs from GGH103S The unique number of GGH1503 is **497652** and the unique number for GGH103S is **478505**. Importantly, this number has to be written and marked on the mark-reading sheet (the unique number is provided in the top section of this page - in brackets after the module code) Wherever the module code is required, write GGH1503 or GGH103S depending on which module you are registered for
- C Allocation of marks
- Section 1 50 marks - 50 multiple choice questions
  - Section 2 50 marks - six 10 mark questions of which you have to answer any five
- D It is recommended that you use the available time as follows
- Section A Not more than 60 minutes - here it is of extreme importance not to spend too much time on any one of the questions
  - Section B 60 minutes
- E Read the instructions at the beginning of each section and follow them carefully

**THIS EXAMINATION PAPER REMAINS THE PROPERTY OF UNISA AND MAY NOT BE REMOVED FROM THE EXAMINATION VENUE**

**[TURN OVER]**

**Section A****INSTRUCTIONS**

Answer **all** the questions

Mark your answers with a HB-pencil on the mark-reading sheet supplied to you

Remember to enter your student number and the unique number of the examination paper on the mark-reading sheet

**QUESTIONS**

*Study unit 1 – Environmental problems and their causes, and sustainability*

- 1 A root cause of the current environmental crisis includes
  - (1) rapid population growth
  - (2) even distribution of wealth
  - (3) increasingly sustainable use of resources
  - (4) prices reflecting environmental costs
  
- 2 Those with an Earth-caring worldview are likely to encourage all of the following actions/viewpoints except ?
  - (1) leaving Earth in at least as good a shape as we found it
  - (2) creating policies with concern for future generations
  - (3) using up non-renewable resources as quickly as possible to speed the non-renewable resource revolution
  - (4) to understand and work with nature
  
- 3 A resource that is too expensive to extract is said to be
  - (1) perpetual
  - (2) economically depleted
  - (3) ecologically depleted
  - (4) environmentally depleted
  - (5) limited
  
- 4 What is the primary difference between renewable resources and nonrenewable resources?
  - (1) how easily they are discovered
  - (2) the amount of the resource that is available
  - (3) the length of time it takes for them to be replenished
  - (4) how fast they are being used up
  - (5) none of these

[TURN OVER]

5 Natural capital includes all of the following except

- (1) sunlight
- (2) air
- (3) water
- (4) soil
- (5) nutrients

*Study unit 2 – Science, matter, energy and systems*

6 The matter and energy laws tell us that we can recycle

- (1) both matter and energy
- (2) neither matter nor energy
- (3) matter but not energy
- (4) energy but not matter

7 Which one of the following statements about a matter-recycling society is false?

- (1) The goal of a matter-recycling society is to allow economic growth to continue without depleting matter resources
- (2) One limitation of a matter-recycling society is dependence on high-quality energy to recycle materials
- (3) A matter-recycling society is limited by the environment's capacity to absorb and disperse waste heat and to dilute and degrade waste matter
- (4) A matter-recycling society is independent of high-quality matter because materials can continue to be recycled indefinitely

8 Liquids, solids and gases are

- (1) physical forms of matter
- (2) hydrogen bonds
- (3) isotopes of the same element
- (4) organic compounds
- (5) molecules

9 Of the options listed below to deal with non-degradable pollutants, the least effective would be to

- (1) remove them from contaminated air, water and/or soil
- (2) reuse them
- (3) recycle them
- (4) refrain from introducing them into the environment

10 Which one of the following is the definition of a scientific hypothesis?

- (1) a simulation of a system being studied
- (2) a possible explanation for an observation
- (3) information needed to answer questions
- (4) procedures carried out under controlled conditions to gather information
- (5) all of these

**[TURN OVER]**

*Study unit 3 – Ecosystems What are they and how do they work?*

- 11 The transfer of carbon between organisms depends **primarily** on
- (1) fuel combustion and decomposition
  - (2) photosynthesis and cellular respiration
  - (3) soil bacteria and precipitation
  - (4) volcanic activity and organic decay
  - (5) the rock cycle
- 12 Life on earth depends on interaction of gravity, the cycling of matter, and
- (1) cycling of energy
  - (2) one-way flow of energy
  - (3) one-way flow of matter
  - (4) the destruction of energy
  - (5) the consumption of matter
- 13 The largest numbers of species of organisms on Earth are currently
- (1) microorganisms and fungi
  - (2) amphibians and reptiles
  - (3) insects and fungi
  - (4) insects and microorganisms
  - (5) mammals
- 14 Most of the energy input in a food chain is
- (1) in the form of heat
  - (2) converted to biomass
  - (3) recycled as it reaches the end of the chain
  - (4) degraded to low-quality heat
  - (5) converted to carbon dioxide

*Study unit 4 – Biodiversity and evolution*

- 15 Biodiversity is believed to be the result of the interaction between.
- (1) geographic isolation and reproductive isolation
  - (2) speciation and extinction
  - (3) mass extinction and background extinction
  - (4) speciation and genetic engineering
  - (5) reproductive isolation and extinction
- 16 Which one of the following is **true** of species richness on islands?
- (1) Larger islands closer to a mainland have the lowest number of species
  - (2) Smaller islands closer to a mainland have the highest number of species
  - (3) Larger islands farthest from a mainland have the highest number of species
  - (4) Larger islands closer to a mainland have the highest number of species

[TURN OVER]

17 Biological evolution by natural selection is when genes , individuals , and populations

- (1) evolve, mutate, are selected
- (2) are selected, mutate, evolve
- (3) mutate, evolve, are selected
- (4) evolve, are selected, mutate
- (5) mutate, are selected, evolve

18 Speciation, induced by geographic isolation, may be the result of

- (a) volcanic eruptions
- (b) earthquakes
- (c) mountain ranges
- (d) rivers

The correct combination of alternatives is

- (1) Only (a)
- (2) Only (c)
- (3) Only (b), (c) and (d)
- (4) Only (a) and (d)
- (5) All of the above

*Study unit 5 - The ecology of biological communities*

19 Compared to forests, grasslands have.

- (1) more diversity and more inertia
- (2) more diversity and more resilience
- (3) less diversity and more inertia
- (4) less diversity and more resilience
- (5) more diversity and more constancy

20 "The maximum population of a given species that a particular habitat can sustain indefinitely without being degraded" is the definition of

- (1) logistic growth
- (2) environmental resistance
- (3) exponential growth
- (4) carrying capacity
- (5) biotic potential

21 Species that serve as early warnings of environmental damage are called species

- (1) non-native
- (2) native
- (3) specialist
- (4) indicator
- (5) generalist

**[TURN OVER]**

22 How long does it take natural processes to produce fertile soil?

- (1) weeks to months
- (2) months to years
- (3) decades to a few centuries
- (4) several centuries to several thousands of years
- (5) several thousand years to millions of years

*Study unit 6 - Humankind The ultimate consumer*

23 Sustainable agriculture

- (1) emphasises large-scale farms
- (2) uses local inputs as much as possible
- (3) maximises the use of fossil fuels
- (4) promotes subsidies to farmers
- (5) maximises the use of pesticides

24 The conversion of grazing land and marginal land into land for the cultivation of crops would result in

- (1) increased erosion
- (2) increased biodiversity
- (3) lower energy costs
- (4) decreased global warming effects
- (5) using less water

25 Which one of the following soil horizons is considered topsoil?

- (1) O
- (2) A
- (3) B
- (4) C
- (5) E

26 The best way to maintain soil fertility is through

- (1) applying animal manure
- (2) applying commercial inorganic fertilizer
- (3) applying organic fertilizer
- (4) soil conservation
- (5) using low till planting

**[TURN OVER]**

*Study unit 7 - Freshwater the Earth's most precious resource*

27 Which one of the following is false?

- (1) Recharging of groundwater is a slow process
- (2) The water table moves down in dry weather
- (3) Water in a confined aquifer is under pressure
- (4) Groundwater is stationary, it does not move
- (5) The water table is the top of the zone of saturation

28 The movement of water in the seas, air, and on land that is driven by solar energy and gravity is called

- (1) water cycle
- (2) hydraulic cycle
- (3) hydrologic cycle
- (4) fluid cycle
- (5) water treatment cycle

29 Withdrawing too much water from an aquifer can cause all of the following, **except**

- (1) droughts
- (2) land subsidence
- (3) sinkholes
- (4) freshwater contaminated with saltwater
- (5) having to dig deeper and deeper irrigation wells

30 The geological layer, consisting of underground caverns and porous layers of sand, gravel, or bedrock, where groundwater flows, is called

- (1) the zone of saturation
- (2) the water table
- (3) an aquifer
- (4) surface water
- (5) the bedrock

*Study unit 8 - Energy drives it all*

31 World crude oil (petroleum) supplies and prices are expected to be controlled over the long term by

- (1) Russia
- (2) The United States
- (3) The United Arab Emirates
- (4) OPEC
- (5) Saudi Arabia

[TURN OVER]

- 32 The reasons why burning solid coal is a popular means of producing electricity and high-temperature heat are
- (1) high heat content and low carbon dioxide output
  - (2) great abundance and high net useful energy yield
  - (3) low net useful energy yield and high versatility
  - (4) relative abundance and ease of pollution control
- 33 Renewable energy resources include all of the following, **except**
- (1) the sun
  - (2) the wind
  - (3) biomass
  - (4) natural gas
  - (5) water
- 34 The world's fastest growing energy resource is
- (1) hydroelectric dams
  - (2) wind power
  - (3) nuclear power
  - (4) coal-fired power plants
  - (5) tidal energy

*Study unit 9 - The air we breathe*

- 35 Acid deposition is best classified as a(n)
- (1) local problem
  - (2) state problem
  - (3) regional problem
  - (4) national problem
  - (5) international problem
- 36 Most of earth's weather occurs in the
- (1) troposphere
  - (2) thermosphere
  - (3) mesosphere
  - (4) stratosphere
  - (5) tropopause
- 37 A temperature inversion is the result of
- (1) precipitation
  - (2) cold air drainage
  - (3) a lid of warm air on top of cooler, stagnant air
  - (4) a cold blanket of air that prevents warm air from rising
  - (5) mixing of cool and warm air

[TURN OVER]



38 Which one of the following statements is **true**?

- (1) Temperature inversions occur when a layer of cold air prevents warm air from rising
- (2) Temperature inversions make pollution problems worse
- (3) Temperature inversions last only a few minutes to a few hours.
- (4) Normally, cool air near earth's surface expands and rises, carrying pollutants higher into the troposphere
- (5) Temperature inversions help prevent air pollution

*Study unit 10 – Destroying the Earth with waste*

39 At the checkout counter, an environmentalist is most likely to

- (1) say, "plastic please"
- (2) say, "paper please"
- (3) say, "I brought my own bag"
- (4) walk out of the store
- (5) say, "either plastic or paper"

40 Of the following methods of reducing hazardous wastes, the **most** desirable is

- (1) incineration
- (2) conversion to less hazardous materials
- (3) perpetual storage
- (4) depositing hazardous waste in ocean trenches
- (5) recycling and reusing hazardous wastes

41 The most energy-efficient beverage container on the market is

- (1) refillable glass
- (2) recyclable aluminium
- (3) stainless steel
- (4) recyclable plastic
- (5) carton

42 Which one of the following principles does **not** contribute to a transition to a low-waste society?

- (1) economic growth and free markets reduce waste
- (2) everything is connected
- (3) there is no "away"
- (4) reduce, reuse and recycle are the best priorities for using matter
- (5) dilution is not always the solution to pollution

[TURN OVER]

*Study unit 11 - In for the kill*

43 CITES is a(n)

- (1) regulations controlling the introduction of exotic species
- (2) treaty controlling the international trade in endangered species
- (3) pact that supports critical ecosystems that support wildlife
- (4) international organization dedicated to the preservation of endangered species
- (5) policing agency for the protection of threatened species

44 The ecosystem service/s **least likely** to be provided by wild species is/are

- (1) diversifying the gene pool
- (2) balancing all the impacts of human activities
- (3) moderating Earth's climate
- (4) natural pest and disease control

45 Which one of the following processes leads to an increase in biodiversity?

- (1) habitat degradation
- (2) phosphate pollution of streams
- (3) elimination of exotic vegetation
- (4) acid deposition
- (5) erosion

46 The biggest problem with invasive species is that in the new location they

- (1) are always bigger than native species
- (2) have no population controls such as predators
- (3) are always stronger than native species
- (4) have higher reproductive rates than native species
- (5) evolve more quickly than native species

*Study unit 12 - For those who come after us*

47 The temporary or permanent removal of large expanses of forest for agriculture, or other uses, is called .

- (1) reforestation
- (2) deforestation
- (3) selective cutting
- (4) strip cutting
- (5) sustainable harvesting

48 Forests remove from and add to the atmosphere

- (1) oxygen carbon dioxide
- (2) nitrogen oxygen
- (3) carbon dioxide sulphur dioxide
- (4) carbon dioxide oxygen
- (5) nitrogen carbon dioxide

**[TURN OVER]**

49 People living in poverty need fuelwood and cut trees. Deforestation and accelerated soil erosion result. People burn dried animal dung and crop residues as fuel sources. Soil nutrients are depleted. Crops suffer. Hunger and malnutrition contribute to poverty. This sequence is best described as

- (1) beneficial positive feedback
- (2) harmful positive feedback
- (3) a figure eight
- (4) beneficial negative feedback
- (5) harmful negative feedback

50 Sustainable forestry includes all of the following **except** .

- (1) using ecological services to determine economic value
- (2) clear-cutting on steep slopes
- (3) leaving dead trees to enhance wildlife habitats and nutrient recycling
- (4) minimizing fragmentation of larger blocks of forest
- (5) increased paper recycling

**Total for Section A: 50 marks**

**[TURN OVER]**

**Section B****INSTRUCTIONS**

This section has to be done in the examination book supplied to you

This section consists of six (6) questions counting 10 marks each. You have to answer **ANY FIVE (5)** of these questions

Length guideline 200 - 250 words (1 page) per 10 mark answer

**QUESTIONS**

- 1a In your own words, describe the concept of **sustainable development**? (2)
- b Explain the concept of the **tragedy of the commons** in relation to the degradation of renewable free-access resources (2)
- c Based on Figure 1, explain why the total and per capita ecological footprints of China and the USA are so different from one another. Do not discuss population density! (4)

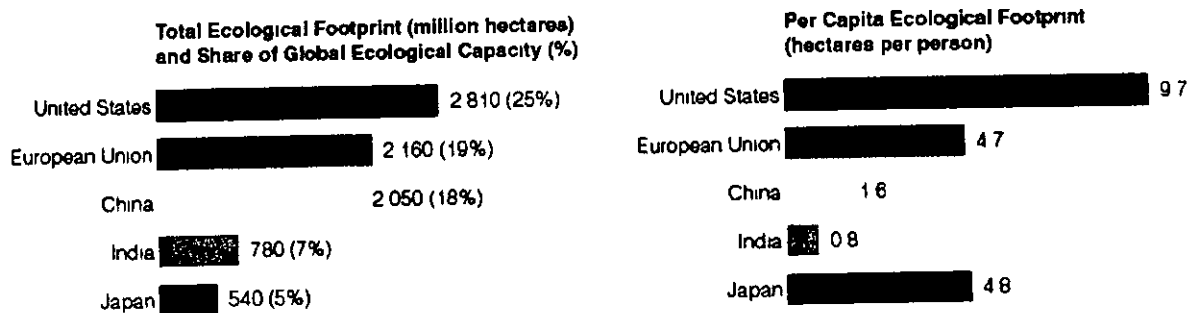


Figure 1 Ecological footprints for a few countries (Miller, 2007) Note the size of the population of China and the USA is 1338 and 309 million people respectively. The area of China and the USA is 957.3 and 962.9 million hectares respectively.

- d Describe any two ways that a person can develop environmental literacy (2) [10]
- 2a Use the second law of thermodynamics to explain why a barrel of oil can only be used once, or in other words, why we cannot recycle high-quality energy (5)
- b What is a balanced chemical equation and how is it related to the law of conservation of matter? (5) [10]
- 3 List three (3) advantages and three (3) disadvantages of using plastics and then explain why so few plastics are recycled [10]
- 4 Name and describe the four major components of biodiversity (8 marks) and

**[TURN OVER]**

explain why biodiversity is so important (2 marks)

[10]

- 5a Given current environmental conditions, if you had a choice, would you rather be an R-strategist or a K-strategist species? Explain your answer (5)
- b Discuss integrated waste management by highlighting the three "R's" Also differentiate between the high-waste and low-waste approaches to waste management (5) [10]
- 6a Distinguish between point and non-point sources of water pollution and give one example of each type Which type is easier to control and why? (5)
- b Describe the difference between weather and climate (2)
- c Define a greenhouse gas (1)
- d Describe the rain shadow effect and explain how it can lead to the formation of inland deserts (2) [10]

**Total for Section B: 50 marks**

**[TOTAL FOR PAPER: 100 MARKS]**

PART 1 (GENERAL/ALGEMEEN) DEEL 1

STUDY UNIT e.g. PSY100-X  
STUDIE-EENHEID bv. PSY100-X

1					
---	--	--	--	--	--

INITIALS AND SURNAME  
VOORLETTERS EN VAN

DATE OF EXAMINATION  
DATUM VAN EKSAMEN

PAPER NUMBER  
VRAESTELNOMMER

2			
---	--	--	--

EXAMINATION CENTRE (E.G. PRETORIA)  
EKSAMENSENTRUM (BV. PRETORIA)

STUDENT NUMBER  
STUDENTENOMMER

6							
---	--	--	--	--	--	--	--

UNIQUE PAPER NO  
UNIEKE VRAESTEL NR

8					
---	--	--	--	--	--

c0	c0	c0	c0	c0	c0	c0	c0
c1	c1	c1	c1	c1	c1	c1	c1
c2	c2	c2	c2	c2	c2	c2	c2
c3	c3	c3	c3	c3	c3	c3	c3
c4	c4	c4	c4	c4	c4	c4	c4
c5	c5	c5	c5	c5	c5	c5	c5
c6	c6	c6	c6	c6	c6	c6	c6
c7	c7	c7	c7	c7	c7	c7	c7
c8	c8	c8	c8	c8	c8	c8	c8
c9	c9	c9	c9	c9	c9	c9	c9

c0	c0	c0	c0	c0	c0
c1	c1	c1	c1	c1	c1
c2	c2	c2	c2	c2	c2
c3	c3	c3	c3	c3	c3
c4	c4	c4	c4	c4	c4
c5	c5	c5	c5	c5	c5
c6	c6	c6	c6	c6	c6
c7	c7	c7	c7	c7	c7
c8	c8	c8	c8	c8	c8
c9	c9	c9	c9	c9	c9

For use by examination invigilator  
Vir gebruik deur eksamenopsiener

- IMPORTANT**
- USE ONLY AN HB PENCIL TO COMPLETE THIS SHEET
  - MARK LIKE THIS ➔
  - CHECK THAT YOUR INITIALS AND SURNAME HAS BEEN FILLED IN CORRECTLY
  - ENTER YOUR STUDENT NUMBER FROM LEFT TO RIGHT
  - CHECK THAT YOUR STUDENT NUMBER HAS BEEN FILLED IN CORRECTLY
  - CHECK THAT THE UNIQUE NUMBER HAS BEEN FILLED IN CORRECTLY
  - CHECK THAT ONLY ONE ANSWER PER QUESTION HAS BEEN MARKED
  - DO NOT FOLD

- BELANGRIK**
- GEBRUIK SLEGS N HB POTLOOD OM HIERDIE BLAD TE VOLTOOI
  - MERK AS VOLG ➔
  - KONTROLEER DAT U VOORLETTERS EN VAN REG INGEVUL IS
  - VUL U STUDENTENOMMER VAN LINKS NA REGS IN
  - KONTROLEER DAT U DIE KORREKTE STUDENTENOMMER VERSTREK HET
  - KONTROLEER DAT DIE UNIEKE NOMMER REG INGEVUL IS
  - MAAK SEKER DAT NET EEN ALTERNATIEF PER VRAAG GEMERK IS
  - MOENIE VOU NIE

PART 2 (ANSWERS/ANTWOORDE) DEEL 2

1	c1	c2	c3	c4	c5	36	c1	c2	c3	c4	c5	71	c1	c2	c3	c4	c5	106	c1	c2	c3	c4	c5
2	c1	c2	c3	c4	c5	37	c1	c2	c3	c4	c5	72	c1	c2	c3	c4	c5	107	c1	c2	c3	c4	c5
3	c1	c2	c3	c4	c5	38	c1	c2	c3	c4	c5	73	c1	c2	c3	c4	c5	108	c1	c2	c3	c4	c5
4	c1	c2	c3	c4	c5	39	c1	c2	c3	c4	c5	74	c1	c2	c3	c4	c5	109	c1	c2	c3	c4	c5
5	c1	c2	c3	c4	c5	40	c1	c2	c3	c4	c5	75	c1	c2	c3	c4	c5	110	c1	c2	c3	c4	c5
6	c1	c2	c3	c4	c5	41	c1	c2	c3	c4	c5	76	c1	c2	c3	c4	c5	111	c1	c2	c3	c4	c5
7	c1	c2	c3	c4	c5	42	c1	c2	c3	c4	c5	77	c1	c2	c3	c4	c5	112	c1	c2	c3	c4	c5
8	c1	c2	c3	c4	c5	43	c1	c2	c3	c4	c5	78	c1	c2	c3	c4	c5	113	c1	c2	c3	c4	c5
9	c1	c2	c3	c4	c5	44	c1	c2	c3	c4	c5	79	c1	c2	c3	c4	c5	114	c1	c2	c3	c4	c5
10	c1	c2	c3	c4	c5	45	c1	c2	c3	c4	c5	80	c1	c2	c3	c4	c5	115	c1	c2	c3	c4	c5
11	c1	c2	c3	c4	c5	46	c1	c2	c3	c4	c5	81	c1	c2	c3	c4	c5	116	c1	c2	c3	c4	c5
12	c1	c2	c3	c4	c5	47	c1	c2	c3	c4	c5	82	c1	c2	c3	c4	c5	117	c1	c2	c3	c4	c5
13	c1	c2	c3	c4	c5	48	c1	c2	c3	c4	c5	83	c1	c2	c3	c4	c5	118	c1	c2	c3	c4	c5
14	c1	c2	c3	c4	c5	49	c1	c2	c3	c4	c5	84	c1	c2	c3	c4	c5	119	c1	c2	c3	c4	c5
15	c1	c2	c3	c4	c5	50	c1	c2	c3	c4	c5	85	c1	c2	c3	c4	c5	120	c1	c2	c3	c4	c5
16	c1	c2	c3	c4	c5	51	c1	c2	c3	c4	c5	86	c1	c2	c3	c4	c5	121	c1	c2	c3	c4	c5
17	c1	c2	c3	c4	c5	52	c1	c2	c3	c4	c5	87	c1	c2	c3	c4	c5	122	c1	c2	c3	c4	c5
18	c1	c2	c3	c4	c5	53	c1	c2	c3	c4	c5	88	c1	c2	c3	c4	c5	123	c1	c2	c3	c4	c5
19	c1	c2	c3	c4	c5	54	c1	c2	c3	c4	c5	89	c1	c2	c3	c4	c5	124	c1	c2	c3	c4	c5
20	c1	c2	c3	c4	c5	55	c1	c2	c3	c4	c5	90	c1	c2	c3	c4	c5	125	c1	c2	c3	c4	c5
21	c1	c2	c3	c4	c5	56	c1	c2	c3	c4	c5	91	c1	c2	c3	c4	c5	126	c1	c2	c3	c4	c5
22	c1	c2	c3	c4	c5	57	c1	c2	c3	c4	c5	92	c1	c2	c3	c4	c5	127	c1	c2	c3	c4	c5
23	c1	c2	c3	c4	c5	58	c1	c2	c3	c4	c5	93	c1	c2	c3	c4	c5	128	c1	c2	c3	c4	c5
24	c1	c2	c3	c4	c5	59	c1	c2	c3	c4	c5	94	c1	c2	c3	c4	c5	129	c1	c2	c3	c4	c5
25	c1	c2	c3	c4	c5	60	c1	c2	c3	c4	c5	95	c1	c2	c3	c4	c5	130	c1	c2	c3	c4	c5
26	c1	c2	c3	c4	c5	61	c1	c2	c3	c4	c5	96	c1	c2	c3	c4	c5	131	c1	c2	c3	c4	c5
27	c1	c2	c3	c4	c5	62	c1	c2	c3	c4	c5	97	c1	c2	c3	c4	c5	132	c1	c2	c3	c4	c5
28	c1	c2	c3	c4	c5	63	c1	c2	c3	c4	c5	98	c1	c2	c3	c4	c5	133	c1	c2	c3	c4	c5
29	c1	c2	c3	c4	c5	64	c1	c2	c3	c4	c5	99	c1	c2	c3	c4	c5	134	c1	c2	c3	c4	c5
30	c1	c2	c3	c4	c5	65	c1	c2	c3	c4	c5	100	c1	c2	c3	c4	c5	135	c1	c2	c3	c4	c5
31	c1	c2	c3	c4	c5	66	c1	c2	c3	c4	c5	101	c1	c2	c3	c4	c5	136	c1	c2	c3	c4	c5
32	c1	c2	c3	c4	c5	67	c1	c2	c3	c4	c5	102	c1	c2	c3	c4	c5	137	c1	c2	c3	c4	c5
33	c1	c2	c3	c4	c5	68	c1	c2	c3	c4	c5	103	c1	c2	c3	c4	c5	138	c1	c2	c3	c4	c5
34	c1	c2	c3	c4	c5	69	c1	c2	c3	c4	c5	104	c1	c2	c3	c4	c5	139	c1	c2	c3	c4	c5
35	c1	c2	c3	c4	c5	70	c1	c2	c3	c4	c5	105	c1	c2	c3	c4	c5	140	c1	c2	c3	c4	c5

Specimen only