GYMNASIUM MUTTENZ: MATURITÄTSPRÜFUNGEN 2023

Fach:

Klasse/n:

Examinator/Examinatorin:

Guidelines for our candidates:

1. Duration: 4 hours
2. The exam consists of 3 parts:
   - A Listening Comprehension (LC, blue)
   - B Reading Comprehension (RC, white)
   - C Essay (yellow)
3. Procedure:
   The listening comprehension is the beginning of the exam. When the audio listening is started, you must turn to part 1 of the LC and read through it. The CD will not be stopped before the end of the whole LC. Follow the instructions given in the audio listening and in the different sections of the LC.
   When you have finished the LC and RC, hand them in. Remember that you cannot go back to the LC and RC once you have handed it in!
   Finally, you will be given the essay topics and a dictionary.
4. Attention: The LC counts 20%, the RC counts 30% and the essay counts 50% of your final written mark!
5. Assessment:

Part		Mark
LC	20%	
RC	30%	
Essay	50%	
Final Mark		

A	LISTENING COMPREHENSION	pts.	/ 24 pts.

This is the listening comprehension paper of your written Matura exam, which consists of three different sections. Read all the instructions carefully, as they are not part of the recordings.

SECTION 1

You will hear a radio programme about the city of Toronto and their challenge with racoons. For questions 1 – 9, complete the sentences with no more than three words.

You will hear the recording twice.

You now have one minute to look at section 1.

Because of their special relationship with raccoons, the people of Toronto think that their city is the raccoon _(1)_________________________ of the world.

There is no actual data to back this up, but the people of Toronto would have an _(2)_________________________ if science ever told them that Toronto is not a "raccoon nation".

Yet, Toronto's relationship with raccoons is not __(3)_________________________.

For the raccoons, the green bins that the city distributed to collect compost in are like an all-you-can eat _(4)_________________________ and promote the raccoons' proclivity for organic waste - and this did not sit well with the people of Toronto.

Indeed, the compost was _(5)_________________________ everywhere and Mayor John Tory addressed the issue announcing a plan that was similar to the _(6)_________________________

Mayor Tory thought that the raccoons were a __(7)_________________________ but that together with some private sector reinforcements they could outsmart the raccoons.

Mayor Tory felt prepared because of a new raccoon __(8)_________________________ green bin for organic waste the city unveiled.

Indeed, he felt _(9)_________________________ enough to say in front of the press, in both a joking and serious tone, that "Defeat is not an option."

/9 pts.

SECTION 2

You will hear a radio programme on Lego.

For questions 10-16 circle the answer (A, B, C or D) which corresponds best with what you hear.

You will hear the recording twice.

You now have two minutes to look at section 2.

10. Steve Holden
    A. says that his children love Lego.
    B. experiences gratification in picking up Legos with his hands.
    C. calms down excited customers at the London store.
    D. thinks that the Lego's colours are mindful.

11. Oleg Kirk Christiansen
    A. is a Danish godfather celebrating his 90th birthday.
    B. founded the Lego Company with little money.
    C. launched the colourful bricks after WWII.
    D. created Lego for both adults and children.

12. Matthew Ashton was inspired to become a toy designer
    A. because he watched the movie Pinocchio.
    B. because he thought Tom Hanks was a toy designer.
    C. because he was playing with his sister's Lego sets.
    D. because he loved the idea of toys coming to life.

13. Matthew Ashton describes Lego as
    A. a mindful building system that calms one down.
    B. an adventurous building system on a mission.
    C. an inventive building system that promotes creativity and imagination.
    D. a building system that promotes colour training in children.

14. When Matthew Ashton joined the Lego group
    A. the company was already working on getting back to its basics.
    B. the company was successful.
    C. the company was at a low point.
    D. the company's core focus was to spark children's interest in Lego again.

15. The Lego group's strategy is to
    A. start targeting their usual fan base.
    B. instil in adults a sense of pride of creation.
    C. concentrate on reaching mostly adults.
    D. introduce adults into design.

16. The digital building instructions Lego has begun to introduce are successful
    A. because by turning the models on screen, the build-up becomes clearer.
    B. because the instructions are interactive.
    C. because everyone prefers digital instructions these days.
    D. because little children like them.

/7 pts.

SECTION 3

You will hear four different extracts taken from a panel discussion in which prominent members of the arts community respond to the proposition that "art is everywhere".

You will hear the recording twice. While you listen, you must complete both tasks.

You now have one minute to look at the questions.

TASK 1

For questions 17-20, match the extracts with the field of art the speaker specializes in, listed A-H.

A creating literary works of art
B first-person narrations
C visual arts
D performing arts
E telling stories
F entertaining arts
G podcasting
H Art History

Speaker 1	.... (17)
Speaker 2	.... (18)
Speaker 3	.... (19)
Speaker 4	.... (20)

TASK 2

For questions 21-24, match the extracts with what the speaker says about art, listed A-F.

A the speaker says that art is created through different mediums
B the speaker is not sure that this particular form of art qualifies as art
C the speaker says that it is difficult to define Art
D the speaker says that having a talk with someone is a form of art
E the speaker says that art is expressed through personal stories that need to be told
F the speaker says that the concept of art is best understood in middle age

Speaker 1	.... (21)
Speaker 2	.... (22)
Speaker 3	.... (23)
Speaker 4	.... (24)

/8 pts.

B	READING COMPREHENSION	pts.	/ 78 pts.

The reading comprehension is divided into three parts.
For each part, follow the given instructions.

PART I: WORD FORMATION
Use the word in capitals in the 2nd column to form a word that fits the gap with the same number in form and meaning.

Life will find a way: could scientists make Jurassic Park a reality?

Cloning. Tue 21 June 2022

Just a few years from now, herds of woolly ‘mammoths’ could be roaming the Siberian tundra. Are dodos and dinosaurs next for de-extinction?

An artist’s impression of the woolly mammoth. Photograph: David Fleetham/Alamy

What Alida Bailleul saw through the microscope made no sense. She was [1]................................... thin sections of fossilised skull from a young hadrosaur, a duck-billed, plant-eating beast that roamed what is now Montana 75m years ago, when she spotted features that made her draw a breath.	**1 EXAMINATION**
Bailleul was inspecting the fossils, from a collection at the Museum of the Rockies in Bozeman, Montana, to understand how dinosaur skulls developed. But what [2].............................. her eye should not, the textbooks said, be there. [3].................................. in calcified cartilage at the back of the skull were what appeared to be fossilised cells. Some contained tiny structures that resembled nuclei. In one was what looked like a clump of chromosomes, the threads that bear an organism’s DNA.	**2 CATCH** **3 BED**
Bailleul showed the specimens to Mary Schweitzer, a professor and [4].............................. in molecular palaeontology at North Carolina State University, who was visiting the museum. Schweitzer had done her PhD in Montana under the supervision of Jack Horner, the [5]........................... fossil hunter who inspired the Jurassic Park character Alan Grant. Schweitzer herself had become famous – and faced waves of [6].............................. – for claiming to have found soft tissue in dinosaur fossils, from blood vessels to fragments of proteins.	**4 SPECIAL** **5 RESIDE** **6 CRITICAL**

Schweitzer was intrigued by Bailleul's discovery and the two joined forces to study the fossils further. In early 2020, as the world was dealing with the [7]............................ of Covid, they published a bombshell paper on their findings. Their report laid out not only evidence for dinosaur cells and nuclei in the hadrosaur fossils, but results from [8]............................. tests that pointed to DNA, or something like it, coiled up inside.

The idea of [9]............................ biological material from dinosaur fossils is [10]................................ and profound. Schweitzer doesn't claim to have found dinosaur DNA – the evidence is too weak to be sure – but she says scientists should not dismiss the [11]................... that it could persist in prehistoric remains.

"I don't think we should ever rule out getting dinosaur DNA from dinosaur fossils," she says. "We're not there yet, and maybe we won't find it, but I guarantee we won't if we don't continue to look."

Scraps of prehistoric tissue, proteins or DNA could transform the field of [12]............................ palaeontology and [13]......................... many of the mysteries of dinosaurs' lives. But the prospect of having the intact genetic code from a tyrannosaur or velociraptor raises questions scientists have become used to fielding since the original Jurassic Park movie in 1993. Armed with [14]............................... dino DNA, could we bring back the lumbering beasts?

Rapid advances in biotechnology have paved the way for elegant approaches to de-extinction, where a species once considered lost for ever gets a second shot at [15]..................... on Earth. For now, the focus is on [16]....................... that humans once shared the planet with – and which we helped to drive out of existence.

[17]................................ the most high-profile de-extinction programme aims to recreate, in some sense, the woolly mammoth and return herds of the beasts to the Siberian tundra thousands of years after they died out. The company behind the venture, Colossal, was founded by the Harvard geneticist George Church, and Ben Lamm, a tech [18]................................. , who claim that thousands of woolly mammoths could help to restore the degraded habitat: for example, by knocking down trees, [19]............................. the soil with their dung, and [20]............................... grasslands to regrow. If all goes to plan – and it may well not – the first calves could be [21]............................. within six years.

7 ARRIVE
8 CHEMISTRY
9 COVER
10 CONTROVERSY
11 POSSIBLE
12 MOLECULE
13 LOCK
14 SUFFICE
15 LIVE
16 CREATE
17 ARGUE
18 ENTERPRISE
19 FERTILE
20 COURAGE
21 BEAR

What lies ahead is a formidable challenge. Despite well-preserved mammoths being dug out of the tundra, no living cells were found to clone them using the approach that produced Dolly the sheep, the first cloned mammal. So Colossal has devised a workaround. First, the team compared the genomes of the woolly mammoth and a close living relative, the Asian elephant. This [22]......................... genetic variants that equipped the woolly mammoth for the cold: the [23].................................... coat of hair, the shortened ears, the thick layers of fat for insulation and so on.	22 REVELATION 23 DENSITY
The next step is to use gene [24].............................. tools to rewrite the genome of an Asian elephant cell. If the 50 or so expected edits have the desired effect, the team will insert one of the "mammothified" elephant cells into an Asian elephant egg that has had the nucleus [25].............................. . A zap of electricity will be applied to spark fertilisation and the egg should start to divide and grow into an embryo. Finally, the embryo will be transferred to a surrogate mother or, given the aim to produce thousands of the creatures, an [26].................................. womb that can carry the foetus to term.	24 EDITION 25 MOVE 26 ART
Colossal's project highlights one of the greatest [27].. about de-extinction programmes. For all the talk of bringing species back, these will not be copies of extinct animals. Colossal's woolly mammoth, as Church readily admits, will be an elephant modified to survive the cold.	27 UNDERSTAND
Whether that matters depends on the motive. If the aim is to [28]............................. the health of an ecosystem, then the animal's behaviour trumps its identity. But if the [29]....................................... is nostalgia, or an attempt to assuage human guilt for [30].. a species, de-extinction may be little more than a scientific strategy for fooling ourselves.	28 STORAGE 29 DRIVE 30 DESTRUCTION

/30 pts.

PART II: SYNONYMS. GUESSING MEANING FROM CONTEXT
Circle the letter A, B, C or D in front of the expression that can best replace the words in bold in the given context.

The dodo: without a habitat for it to thrive in, there's no point in resurrecting it.
Photograph: Leemage/Corbis/Getty Images

The California-based non-profit Revive and Restore has projects under way to help [1]**revive** more than 40 species through the [2]**shrewd** application of biotechnology. The organisation has cloned a black-footed ferret, named Elizabeth Ann, which is on course to become the first cloned mammal to help save an endangered species. The hope is that Elizabeth Ann, who was created from cells frozen in the 1980s, will bring much-needed genetic diversity to wild colonies of ferrets that are threatened by inbreeding.

Revive and Restore [3]**intends** to bring back two extinct bird species, the heath hen and the passenger pigeon, as soon as the 2030s. After holding on for decades in Martha's Vineyard, an island near Cape Cod in Massachusetts, the heath hen [4]**eventually** died out in 1932. [5]**Under** the de-extinction plan, scientists will create a replacement bird by editing the DNA of the closely related prairie chicken to carry heath hen genes. The passenger pigeon project takes a similar approach, using the band-tailed pigeon as the genetic [6]**template**.

Should humans try to [7]**prevent** all future extinctions? Every species dies out at some point. But while extinction is normal in ecosystem evolution, human activity is driving species to the [8]**brink** [of extinction] faster than most species can adapt. Novak says preventing all extinctions is a "good goal" but the reality, he adds, is that the world's governments have not prioritised conservation over exploitation. "No matter how many people really work hard, we have the majority of humanity still working against that goal," he says. "What we can do is prevent as many as possible right now, and re-diversify the world in a way that gives us the ecological stability to prevent further extinctions."

The dodo is a prime candidate for de-extinction. Once native to Mauritius (and only Mauritius), the large, flightless bird died out in the 17th century after humans settled on the island. On top of the widespread destruction of its habitat, the dodo was further threatened by pigs, cats and monkeys that sailors brought with them.

A team [9]**led** by Beth Shapiro, a professor of ecology and evolutionary biology at the University of California, Santa Cruz, has sequenced the dodo genome from a museum specimen in Copenhagen. In theory, a dodo-like bird could be created by editing the Nicobar pigeon genome to contain dodo DNA, but, as with all de-extinction projects, creating the animal is not enough: there has to be a habitat for it to [10]**thrive** in, or the exercise becomes [11]**pointless**.

1.	**revive**	**A**	recover	**B**	deteriorate	**C**	fix	**D**	patch
2.	**shrewd**	**A**	simple	**B**	naïve	**C**	clever	**D**	intricate
3.	**intends**	**A**	regards	**B**	aims	**C**	refuses	**D**	neglects
4.	**eventually**	**A**	finally	**B**	partly	**C**	perhaps	**D**	casually
5.	**under**	**A**	below	**B**	according to	**C**	beneath	**D**	apart from
6.	**template**	**A**	sign	**B**	mirror	**C**	prototype	**D**	baseline
7.	**prevent**	**A**	support	**B**	accept	**C**	ignore	**D**	hinder
8.	**brink**	**A**	end	**B**	breaking point	**C**	maximum	**D**	verge
9.	**led**	**A**	faced	**B**	headed	**C**	footed	**D**	armed
10.	**thrive**	**A**	prosper	**B**	deteriorate	**C**	stay	**D**	generalize
11.	**pointless**	**A**	necessary	**B**	crucial	**C**	futile	**D**	fruitful

"I think it's [12]**crucial** that, as we prioritise species and ecosystems for protection, we do so while considering what our planet will be like 50 or 100 years from now, rather than imagining that we can somehow turn back the clock and re-establish ecosystems of the past," Shapiro says.

"The biggest problem many species face today is that the rate of change in their habitats is too fast for evolution to keep up. This is where our new technologies can be useful. We can sequence genomes and make more informed breeding decisions. We can resurrect lost diversity by cloning – like Elizabeth Ann, the black-footed ferret – and we may even be able to move adaptive traits between populations and species. Our new technologies may make it possible for us to increase the rate at which species can [13]**adapt**, perhaps saving some from the same fate as the dodo and the mammoth," she adds.

Most de-extinction projects are [14]**viable** because researchers have either living cells or the entire genome from the lost species, and a close living relative that can be both genetic template and surrogate mother for the "resurrected" animal. In the case of dinosaurs, these may be [15]**insurmountable** hurdles.

The work by Schweitzer, Bailleul and others challenges the textbook explanation of fossilisation as the wholesale replacement of tissue with rock: life turned literally to stone. They see a more complex process at work, with the fossilisation process occasionally preserving the molecules of life, for perhaps tens of millions of years.

But even if soft tissue can survive in fossils, that may not be true for dinosaur DNA. Genetic material starts to [16]**break down** soon after death, so anything preserved could be highly fragmented. The oldest DNA yet recovered is from the tooth of a million-year-old mammoth preserved in the eastern Siberian permafrost. Older DNA may well be found, but will scientists be able to read the code and understand how it shaped the prehistoric creatures?

Other hurdles abound, Schweitzer says. [17]**Armed** with the entire genome of Tyrannosaurus rex, researchers would have no idea how the genes were ordered on how many chromosomes. Solve that puzzle, somehow, and you still have to find a close living relative that can be gene-edited to carry the dinosaur genes. While birds are distant relatives of dinosaurs, an ostrich might struggle to carry a T rex to term. "You end up just going down the list," says Schweitzer. "If we can solve this, then there's this, and if we can solve this, then there's this. I don't think technology can overcome it, at least not in the foreseeable future."

But what if life can find a way? An approach championed by Schweitzer's [18]**former** supervisor, Jack Horner, is to take a living relative of the dinosaur – the chicken – and rewrite its genome to make birds with dinosaur-like features. By [19]**tinkering** with bird genomes, researchers have recreated dinosaur-like teeth, tails and even hands, similar to those on the velociraptor. Keep going, says Horner, and you end up with a "chickenosaurus".

12.	**crucial**	**A**	fantastic	**B**	essential	**C**	annoying	**D**	surprising
13.	**adapt**	**A**	adjust	**B**	perish	**C**	decline	**D**	alternate
14.	**viable**	**A**	doomed	**B**	frustrating	**C**	feasible	**D**	done
15.	**insur- mountable**	**A**	un- touchable	**B**	un- conquerable	**C**	vincible	**D**	undeniable
16.	**break down**	**A**	stop working	**B**	cry	**C**	crash	**D**	decay
17.	**armed**	**A**	equipped	**B**	shielded	**C**	militarised	**D**	beweaponed
18.	**former**	**A**	stately	**B**	reserved	**C**	official	**D**	previous
19.	**tinkering**	**A**	working	**B**	dealing	**C**	interacting	**D**	tampering

Technology cannot solve everything, though. A sustainable population, with healthy genetic variation, might call for 500 or so animals. "Where are we going to put them? And which modern species are you going to drive to extinction so that dinosaurs have a place again on this planet?" says Schweitzer. "We might be able to put one in a zoo for people to spend zillions of dollars to come and look at, but is that fair to the animal?"

Instead of trying to recreate the [20]**beasts**, Schweitzer simply wants to understand them better. Organic molecules locked up in fossils could shed light on the endless mysteries that surround the dinosaurs. Did they produce enzymes to get more nutrition from plants? How did they [21]**cope** with carbon dioxide levels more than twice as high as today? And how did they maintain their often enormous body sizes?

"I don't think it's [22]**unreasonable** to suggest that as technology and our understanding of degradation catches up, we may get informative DNA," she says. "Think of the questions we can answer if we do – that's what I find exciting.

"I don't hold my breath that we'll ever see a dinosaur walking around. I'm not going to rule it out – a scientist should never say never – but I think it's human [23]**hubris** to bring back a dinosaur just so we can say we did it. We need to have more reason than that."

20.	**beasts**	**A**	animals	**B**	cattle	**C**	monsters	**D**	aggressors
21.	**cope**	**A**	handle	**B**	deal	**C**	work	**D**	tackle
22.	**unreason-able**	**A**	impossible	**B**	imprudent	**C**	logical	**D**	irrational
23.	**hubris**	**A**	stupidity	**B**	far-sightedness	**C**	arrogance	**D**	naivety

/23 pts.

PART III: TRUE / FALSE STATEMENTS
Read the statements below and decide which answers correspond to what you have read in the text. For each letter decide whether it is true or false.

1.	**Science**	**T / F**
A.	Scientists found a new species of dinosaurs.	
B.	Scientists claim that recovering dinosaur DNA is unlikely.	
C.	Scientists vow for perseverance to continue with their research into dinosaur DNA.	
D.	Scientists have been confronted with questions about dinosaur resurrection since the release of the first Jurassic Park film.	

2.	**Resurrection**	**T / F**
A.	The current progress in biotechnology offers humanity a chance to make up for having carelessly eradicated certain species in the past.	
B.	Resurrection of huge mammals merely aims at financial profit.	
C.	Possible resurrection of mammoths gets justified by Church and Lamm as being advantageous for the restoration of its environment.	
D.	Plans for the resurrection of woolly mammoths are being made and will definitely be implemented within the next decade.	

3.	**Genetics**	T / F
A.	The genomes of mammoths vary from those of their still existing kin.	
B.	The reproduction of the extinct woolly mammoth is still wishful thinking.	
C.	Genetic science has the means to reproduce an extinct species from entirely original material.	
D.	At present time, the original species cannot be brought back.	
E.	The original woolly mammoth did not only have fur but also fat to protect it against the cold.	

4.	**Elizabeth Ann**	T / F
A.	Black-footed ferrets died out in the 1980s.	
B.	Elizabeth Ann was reproduced to enlarge the genetic pool of ferrets.	
C.	Elizabeth Ann is too closely related to the current population of wild ferrets to be of help.	
D.	If successful, Elizabeth Ann will supply her distant relatives with a new splash of genes that will counteract inbreeding.	

5.	**Disappearances**	T / F
A.	The disappearance of species is solely the result of humanity's wrongdoings.	
B.	Mr. Novak, Revive and Restore, claims that trying to prevent extinction at all is a waste of time.	
C.	Even if resurrection biology is to bring back lost species, their survival still heavily depends on protecting their natural surroundings.	
D.	The University of California currently works on resurrecting the Mauritian Dodo.	

6.	**Outlook into the future**	T / F
A.	Cloning may be the solution to preserving endangered species from becoming extinct.	
B.	According to Schweitzer, scientific pride should not be the sole cause for bringing back dinosaurs.	
C.	The resurrection of dinosaurs is a taboo among scientists.	
D.	The protection of natural habitats needs to be done in view of the probable development of resurrected species in the immediate future.	

/25 pts.