13+ Scholarship Examinations 2022

GENERAL PAPER

1 hour 30 minutes

72 marks

There are **72 marks** available for this paper and you are advised to divide your time roughly according to the marks available.

Section A	**Logic Problems (10 marks)**
Section B	**General Knowledge (14 marks)**
Section C	**Semantics (13 marks)**
Section D	**Linguistics (14 marks)**
Section E	**What3words (9 marks)**
Section F	**Politics & Economics (12 marks)**

Write the answers to all sections in this booklet but extra lined paper if needed may be used and submitted as well.

Calculators are not permitted to be used in this paper.

Name: ………………………………………… Current school: …….…………………….…..

Section A   Logic Problems (12 marks)

In Section A circle the correct letter in the multiple choice questions 1-4.

1.   A child's bus fare is cheaper than the adult fare but is more than half the adult fare. The total cost of a single journey for an adult and two children is £1.20. Adult fares are all multiples of 10 p. [1]

What is the adult fare?

A 30 p   C 50 p   E 70 p

B 40 p   D 60 p

2.   Some of the great sea-mammals, such as the sperm whale, have brains many times larger than ours. It is a fact of evolution that organs do not grow or remain large unless they are used; if they are not used they shrink or even disappear. It must be concluded therefore that the sperm whale makes intelligent use of the vast brain it possesses, perhaps at thought levels well beyond our understanding.

Which of the following would, if true, weaken the argument? [2]

    A   Humans have developed intelligence despite having smaller brains than whales.

    B   Whales lack the ability to communicate in language.

    C   Large brains may have uses that do not involve intelligence.

    D   There is no correlation between the size of the animal and the size of its brain.

    E   Whale intelligence may be of a kind that humans do not recognise.

3.   The chart below shows the distribution of results this season for the King's Ultimate Frisbee team.

They have played 24 matches to date and lost none. [1]
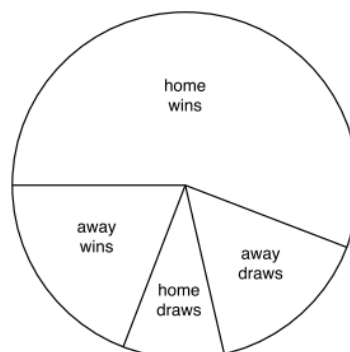
How many matches have they won?

A 4   C 14   E 18

B 6   D 16

4.   The cut-out below was folded together to make a cube.

Which of the following cubes was made from the cut-out? [2]

5.   Five scholarship candidates were taking a General Paper. Amelia finished before Brian, but behind Camilla. Dustin finished before Ella, but behind Brian. Who was fourth? [1]
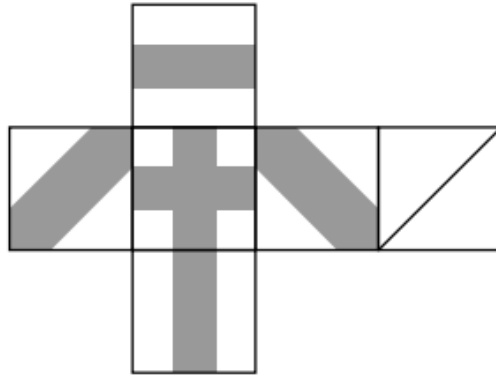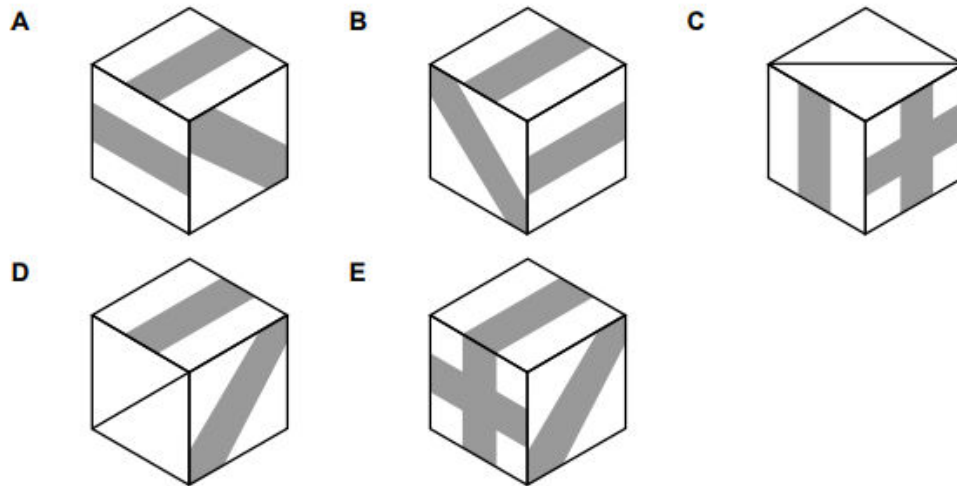
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6.   This is a problem taken from a game-show hosted by Monty Hall.

You are given three doors to choose from, one of which has a car behind it and the other two have goats [assume you would prefer to win a car than a goat, even though you can't drive yet!]. After you've chosen one but haven't opened it, Monty, who chose the order before the show, reveals the location of a goat from behind one of the other two doors. You are then allowed to reconsider your choice. Should you stick with your original choice or switch?

Given the rational choice and explain briefly. [3]

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Section B   General Knowledge [10 marks] & Chronology [4 marks]

In Section B write the letters of your answers on page 5.

(a)   We are keen that students at King's keep up a strong awareness of the world around them, shown by a high level of general knowledge and awareness of current affairs.

We set an annual multiple choice exam for the Year 9 (Shell) pupils at King's with prizes for the highest scores and the highest average house score.

The below are questions from recent Shell GK papers. Given the unpredicatable nature of what comes up in General Knowledge, to be fairer to you in this paper, attempt only the **ten of these fifteen** questions that you are most confident of getting right. The maximum mark for this section is 10, and if more than ten are attempted then marks will be deducted.

1.   Jorge Mario Bergoglio is the current Pope (leader of the Catholic Church). What name did he choose on his election?

A	Pope John Paul	C	Pope Donald	E	Pope Pius
B	Pope Benedict	D	Pope Francis		

2.   Claude Monet was famous as a

A	Sculptor	C	Composer	E	Writer
B	Painter	D	Photographer		

3.   What is the name given to a musical work for a solo instrument accompanied by an orchestra?

A	Study	C	Concerto	E	Symphony
B	Recital	D	Suite		

4.   Which of these geographic words means a group of islands?

A	Delta	C	Range	E	Fjord
B	Archipelago	D	Canyon		

5.   If a monkey took a multiple choice paper like this of 90 questions and chose an answer for each question (let's assume at random), what score is it likely to get?

A	12	C	16	E	20
B	14	D	18		

6.   Which of the following does **not** contain the naturally-occurring stimulant caffeine?

A	Coffee beans	D	Peppermint leaves
B	Tea leaves	E	Cacao plants (used to make cocoa and chocolate)
C	Kola nuts (used to make Coca-Cola)		

7.   Who was inaugurated as Vice-President of the United States in January 2021?

A	Hillary Clinton	C	Joe Biden	E	Kamala Harris
B	Mike Pence	D	Nancy Pelosi		

8. Who is the current leader of the Opposition (leader of the UK Labour Party)?

A   Jeremy Clarkson   D   Rishi Sunak
B   Boris Johnson   E   Jeremy Corbyn
C   Sir Kier Starmer

9. Where was Cop-26, the Climate Conference, held during November 2021?

A   Edinburgh   C   London   E   Glasgow
B   Canterbury   D   Cardiff

10. Which city hosted the delayed Olympic Games in August 2021?

A   Los Angeles   C   Shanghai   E   Tokyo
B   Paris   D   Rome

11. Which country hosted the Winter Olympic Games this year?

A   China   C   Russia   E   South Korea
B   Canada   D   Japan

12. What is the longest river in the world, meeting the sea in Egypt?

A   Jordan   C   Thames   E   Amazon
B   Ganges   D   Nile

13. What was the subject of Charles Darwin's famous 'Theory', published in 1859?

A   Water   C   Relativity   E   Gravitation
B   Light   D   Evolution

14. Which country is the sixth largest in the world by area but only has 26 million inhabitants?

A   Russia   C   Brazil   E   Australia
B   Canada   D   United States

15. Which country does not share a land border with Ukraine?

A   Belarus   C   Poland   E   Hungary
B   Turkey   D   Russia

Your answers (choose only 10 of the 15 questions)

1	……	6	……	11	……
2	……	7	……	12	……
3	……	8	……	13	……
4	……	9	……	14	……
5	……	10	……	15	……

(b)   Place the following events in the Earth's history in chronological order and by doing so match them with the eras on the right by writing the correct letters on the dotted lines (…..). (4)

A	Dinosaurs became extinct	…...	4.6 billion years ago
B	Modern humans started to evolve	…...	3.8 billion years ago
C	The ozone layer formed, allowing life to colonise land.	…...	3.6 billion years ago
D	The iron age	…...	600 million years ago
E	The Sun formed from the collapse of a large cloud of matter	…...	65 million years ago
F	Humans walked on the moon	…...	14 million years ago
G	The first great apes appeared	…...	200,000 years ago
H	The surface of Earth changed from molten to solid rock	…...	5,500 years ago
I	The invention of the wheel	…...	3,300 years ago
J	Single-cell life appeared	…...	50 years ago

Section C   Semantics [13 marks]

Noam Chomsky (born 1928) is an American linguist, philosopher and political dissident.

In 1957 he constructed a sentence that has become famous:

Colourless green ideas sleep furiously.

(a)   Is this sentence *grammatically* correct? Explain briefly. [2]

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(b)   There are at least three reasons why the sentence above is *semantically* incorrect (it has no sensible or possible meaning). Give three faults with the meanings of this sentence. [3]

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(c)   Cross out one word from Noam Chomsky's sentence, and replace it with one which makes it grammatically incorrect. There are many different ways you could do this. [1]

Colourless   green   ideas   sleep   furiously.

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(d)   Rewrite Noam Chomsky's sentence by changing the three words in bold so that it is grammatically correct *and* semantically correct. There are many different ways you could do this. [2]

Colourless green **ideas** sleep **furiously**.

....green...sleep...

(e)   Read below the first verse of *The Jabberwocky* by Lewis Carroll, and rewrite it, **keeping the words in bold**, so that it makes good sense in English but is still somewhat poetic. It does not have to rhyme but credit given if it does! [5]

'Twas brillig, **and the** slithy toves
Did gyre **and** gimble **in the** wabe:
All mimsy **were the** borogoves,
And the mome raths outgrabe.

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Section D   Linguistics [14 marks]

1.   Dutch, English, German and Swedish all belong to a group of related languages, called the Germanic Languages.

Because they all originally developed from the same language, there are many similarities between the languages.   The languages share many cognates – words which are the same or similar in more than one language, and which usually (but not always) have a shared meaning.

Below are Dutch, English, German and Swedish translations of the same text, taken from visitors' brochures for the Vasa Museum in Stockholm. The texts explain that the Vasa was a ship which sunk in 1628 in Stockholm whilst on its maiden voyage (first ever trip). Its wreck was recovered and can be seen in the museum.

English

On 10 August 1628, Vasa set sail on her maiden voyage and sank in Stockholm harbour.

Dutch

Op 10 augustus 1628 begon de Vasa aan haar eerste reis en zonk derzelfde dag nog in de haven van Stockholm.

German

Am 10. August 1628 sank das Kriegsschiff Vasa im Stockholmer Hafen – dem Tag, an dem es seine Jungfernfahrt antreten sollte.

Swedish

Vasa seglade ut på sin jungfrufärd och sjönk I Stockholms hamn den 10 augusti 1628.

Complete the table by writing the Dutch, German and Swedish translations of the following words or phrases in the boxes: [6]

English	Dutch	German	Swedish
sank			
harbour			
maiden voyage			

2.   **Bambara** is spoken mainly in Mali in West Africa. It has about 6 million speakers.

Below is a list of numbers in the Bambara language. Some, unfortunately, are missing! Look carefully at the table and try to spot the patterns.

1	kelen	19	
2	fla	20	mugan
3		21	
4	naani	22	mugan ni fla
5	duurun	23	mugan ni saba
6		30	bi saba
7		40	bi naani
8	segi	50	
9	kononto	55	
10	tan	60	
11	tan ni kelen	70	bi wolonfla
12		80	bi segi
13		90	
14	tan ni naani	100	keme
15		200	keme fla
16	tan ni wooro	300	
17	tan ni wolonfla	1000	wa kelen
18	tan ni segi	2000	

Fill in as many of the missing numbers as you can, writing in the table. [8]

You can use the space below for rough working if you wish.

Section E   What Three Words [9 marks]

///**what3words** is a proprietary geocode system designed to identify any location with a resolution of about 3 metres. It is owned by What3words Ltd, based in London. The system encodes geographic coordinates into three permanently fixed words from the dictionary.

Ever 3mx3m square on the planet is given a unique three-word address, for example:

- the front door of 10 Downing Street in London is ///slurs.this.shark
- Mint Yard Gate at King's is ///love.whips.liver

"The words are randomly assigned to each square and will always stay the same. Now it's easy to find and share any location with just three words," the company says.

(a)   What advantages and disadvantages of what3words can you think of? [4]

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(b)   How many ///what3words addresses would there be, approximately, in one square kilometre? [2]

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(c)   If there are 50,000 words in English (which is the language with the most words of any), are there enough English words to cover the whole planet's surface in this way? [3]

You do not need to do a calculation – just explain how you could go about checking this if you had a calculator with you.

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Section F   **Politics & Economics [12 marks]**

Politics and Economics are two popular subjects to study at King's in the Sixth Form. Use your wider reading and 13 years' experience as an intelligent, inquisitive young person to answer these A level questions as best you can. Perfect definitions and understanding are not necessary to gain the maximum marks here.

(a)   Describe concisely, with an example or two, **one** of the following types of political system.

   Democracy   **Dictatorship**   **Constitutional Monarchy**   **Communism**

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(b)   Define concisely, with an example or two, **one** of the following economic concepts.

Inflation   **Monopoly**   **Interest rate**   **Mortgage**

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13+ Scholarship Examinations 2021

GENERAL PAPER

1 hour 30 minutes

70 marks

There are **70 marks** available for this paper and you are advised to divide your time roughly according to the marks available.

Section A	**Logic (13 marks)**
Section B	**Linguistics (18 marks)**
Section C	**Proverbs & Epigrams (15 marks)**
Section D	**Mars Briefing (12 marks)**
Section E	**Short Essay (12 marks)**
Page 12	**Extra writing space**

Write the answers to all sections in this booklet but extra lined paper if needed may be used and submitted as well.

Name: ……………………………………… **Current school:** ……..………………………..

Section A   Logic (13 marks)

Classify the conclusions given below as one of the following (circle the correct letter): (5)

A	Certainly true
B	Probably true (over 50% likelihood)
C	Not necessarily true
D	Probably untrue (over 50% likelihood)
E	Certainly untrue

1.   Statement   Augustine is the only man in the queue. The queue is long. There are no children in the queue.

Conclusion   There is a woman in front of Augustine and a woman behind him.

Answer: A   B   C   D   E

2.   Statement   A box contains 16 spotted balls, 12 striped ones and 8 plain ones. One ball is drawn from the box.

Conclusion   It is not a spotted ball.

Answer: A   B   C   D   E

3.   Statement   There were 20 events on a school sports day. In each event at least one quarter of the pupils took part.

Conclusion   No pupil competed in more than four events.

Answer: A   B   C   D   E

4.   Statement   The fourth letter of the name of the fourth month after a certain month I am thinking of is an E.

Conclusion   This month I am thinking of is in the first half of the year.

Answer: A   B   C   D   E

5.   Statement   More than half the children in a class have curly hair and more than half the children with curly hair have brown eyes. Less than half the children with brown eyes have curly hair.

Conclusion   Most of the children without curly hair have brown eyes.

Answer: A   B   C   D   E

(b) The annual Shell Global Perspectives Lecture competition at King's, in which a finalist from each of the 15 houses speaks for three minutes on stage in front of the judges and their contemporaries, is fiercely competitive. Each year there are a wide range of topics and countries represented.

One of the Shells in the audience took some cryptic notes for her review in the school magazine. From these fragments of information identify the Houses and Topics and Countries of the first four speakers on stage this year. (8)

Speakers: Alexa, Eva, George, Max

Themes: Flooding, Human Rights, Poverty, Water Resources

Countries: Chile, Egypt, India, Turkey

Cryptic notes:

- The talk on India came two places after Alexa's speech.

- The Flooding talk came before the Poverty talk, which focused on Egypt.

- Max spoke before George.

- The third talk was about Water Resources.

- The last speaker was female and interested in Turkey.

- Human Rights in Chile were not mentioned this evening.

Order	Name	Theme	Country
Speaker 1	……………………………	…………………………………………………	………………………….
Speaker 2	……………………………	…………………………………………………	………………………….
Speaker 3	……………………………	…………………………………………………	………………………….
Speaker 4	……………………………	…………………………………………………	………………………….

Section B   Linguistics (18 marks)

1. Yodish

Examine the phrases below which are in fluent Yodish:

Always too headstrong to wait Master Luke is, hmmmm?

Exams to take today we must, hmmm?

In his youth strong at general papers Master Yoda used to be, hmmmmmm?

Translate these short sentences into plausible Yodish. (5)

(a) Ewoks usually get in the way.

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(b) Master Obi-wan has a short temper.

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(c) When you are as old as me time matters less.

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2. Abma

Abma is an Austronesian language spoken in parts of the South Pacific island nation of Vanuatu by around 8,000 people.

In the Abma sentences you will read below, there is no separate word for 'the' or 'he'.

Read these sentences in Abma carefully and think about any grammatical rules or patterns you notice. Work out the meanings of some of the individual words.

Then complete the translation tasks.

Nutsu mwatbo mwamni sileng.	The child keeps drinking water.
Mworob mwabma.	He runs here.
Nutsu mwatbo mwegalgal.	The child keeps crawling.
Mwerava Mabontare mwisib.	He pulls Mabontare down.
Mabontare mwisib.	Mabontare goes down.
Mweselkani tela mwesak.	He carries the axe up.
Mwelebte sileng mwabma.	He brings water.
Mabontare mworob mwesak.	Mabontare runs up.
Sileng mworob.	The water runs.

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Here are some other words you will need for the exercises:

sesesrakan	teacher	**muhurai**	walks
mwegani	eats	**bwet**	taro (a kind of sweet potato)

(a) Translate these English sentences into Abma. (7)

Mabontare carries the water down

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The child keeps eating

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The child crawls here

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The teacher walks downhill

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(b) Now translate these Abma sentences into English. (6)

Sesesrakan mweselkani bwet mwabma.

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Sileng mworob mwisib.

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Mwelebte bwet mwesak.

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Section C   Proverbs & Epigrams (15 marks)

Nothing defines a culture as distinctly as its language, and an element of language that strongly encapsulates a society's values and beliefs is its proverbs. Nearly all languages have the equivalent of proverbs.

A proverb is a short pithy saying that expresses a traditionally held truth or piece of advice, based on common sense or experience.

(a) Here are some well-known examples in English from the UK. Choose **three** that you are familiar with and briefly explain their meaning. If you are not familiar with any, make a guess about the meanings and explain your reasoning. (6)

1. 'A bird in the hand is worth two in the bush.'

2. 'Once bitten, twice shy.'

3. 'Too many cooks spoil the broth.'

4. 'When in Rome, do as the Romans do.'

5. 'Two wrongs don't make a right.'

6. 'Never judge a book by its cover.'

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(b) Invent a brand-new proverb of your own that conveys some wisdom and write one sentence to explain what it means. (3)

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Here are three examples of 'epigrams':

'Great people talk about ideas, average people talk about things, and small people talk about other people.' (Fran Lebowitz)

'The old believe everything: the middle-aged suspect everything: the young know everything.' (Oscar Wilde, *Phrases and Philosophies for the Use of the Young*)

'Three things must epigrams, like bees, have all: a sting and honey and a body small.' (Latin verse, quoted by J. Symonds, *Studies of the Greek Poets*, 1877)

(c) From these examples outline the similarities and differences in general between epigrams and proverbs. (6)

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Section D   Mars Briefing (12 marks)

Imagine that you have been asked by your Headteacher to meet a group of Martians who are visiting your school. They have just arrived on Earth and don't know anything that has happened here since December 2019 when they left Mars in a spaceship (that could not receive news broadcasts from Earth). Assume they had watched BBC News up to that date.

Draft a short briefing for them on the most significant events of 2020 and 2021 on planet Earth. You are advised to write in English, not Martian.

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Section E   **Short Essay (12 marks)**

The following titles were all set as short essays in King's 13+ Entrance Scholarship papers of the 1960-1980s.

Choose **one** of the following and respond to it as fully and wittily as you can in the time available.

'Without language, there can be no thought.'

'It is not possible to like oneself much.'

'Few things say more about you than the car you drive.'

'Some questions cannot be answered by yes or no.'

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13+ Scholarship Examinations 2019

GENERAL PAPER

Monday 29 April 2.00-3.30 p.m.

1 hour 30 minutes

TO MANY OF THE QUESTIONS ON THIS PAPER THERE ARE NO RIGHT ANSWERS. THE QUESTIONS ARE DESIGNED TO INVESTIGATE HOW YOU THINK, RATHER THAN WHAT YOU KNOW.

There are **80 marks** available for this paper and you are advised to divide your time roughly according to the marks available:

14 for Section A, 18 for Section B, 14 for Section C,

18 for Section D, and 16 for Section E.

- **Write the answers to Section A on the back page of this booklet**

- **Write the answers to Sections B, C, D and E on separate sheets of writing paper (starting a new sheet for each section).**

- **Write your name clearly at the top of each piece of writing paper used.**

- **Calculators may be used.**

Name: ………………………………………… Current school: ……..………………………..

Section A [14 marks] – Write your answers on the back page of this booklet

1. King's inter-house Art competition is hotly contested in March each year. This time, each house was asked to represent their Housemaster or Housemistress on a large canvas, and, as usual, there were various approaches – some more successful than others.
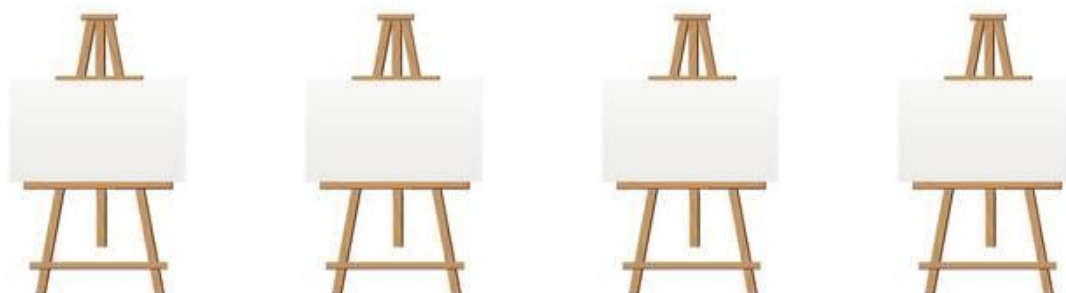
On the west side of the Shirley Hall four large canvases were displayed in a line for judging. Can you work out from the clues below which house's artwork was in which position, and what style or medium they chose?

The Grange's effort was not on one of the ends, and it claimed to show the housemaster in 'an abstract style' (ie he was unrecognisable).

The picture at the left end was not painted, and it was not by a girls' house.

The oil painting was not next to the grey pencil drawing, which lacked colour in its portrayal of Broughton's housemistress.

Walpole's picture, highly commended, was not next to Linacre's entry .

Houses: **The Grange (boys'), Walpole (girls'), Broughton (girls'), Linacre (boys')**

Styles: **abstract painting, paper mosaic, oil painting, pencil drawing**   [6]

[Questions 2-5 have 2 marks each]

2.   The Headmaster buys two lengths of carpet in the sales. The carpet is 4m wide and one of the lengths purchased is 4m long while the other is 6m. A distinct pattern means that the pieces can only be joined so that the pattern runs in one direction. The Headmaster will only tolerate one join per room.

In which of the Headmaster's rooms could the carpet be fitted?

A
8
SNOOKER ROOM   6

B
7
BREAKFAST ROOM   5

C
6
DINING ROOM   6

D
8
LIVING ROOM   5

E
9
LIBRARY   4
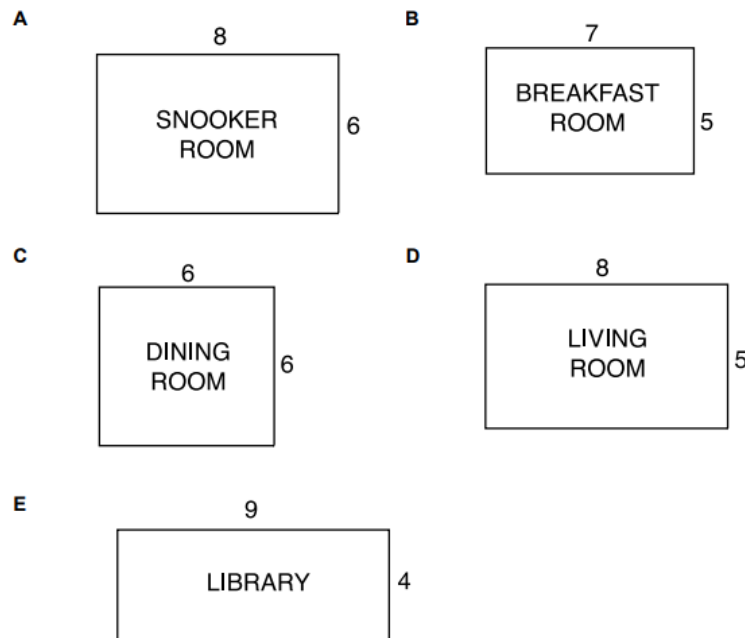
3.   It is not always clear whether a doctor should tell the truth to a patient or not. On the one hand, patients have a right to know what is the matter with them and what the future holds, so that they can make their own informed decisions, however upsetting the truth may be. But, on the other hand, a patient's health may sometimes be better served by not knowing a frightening truth. For instance, a doctor may believe that a patient's medical condition will actually worsen if they realise how serious it is. Therefore, there are cases in which doctors have no choice: they must decide in favour of deceiving the patient.

Which of the following is an underlying assumption of the above argument?

A   Patients accept that a doctor has a responsibility to decide what will be in their best interests.

B   Doctors have a duty to conceal the truth if they believe it will frighten the patient.

C   Doctors have a duty to tell their patients the truth even when the truth would upset them.

D   Doctors have a greater responsibility for a patient's well-being than for their right to know the truth.

E   It is the responsibility of doctors to respect a patient's human rights whatever their medical condition.

4. The drawing shows a sculpture, seen from above:
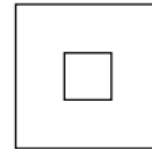
Which of the below could not be a view from one of the sides?

A

B

C

D

E
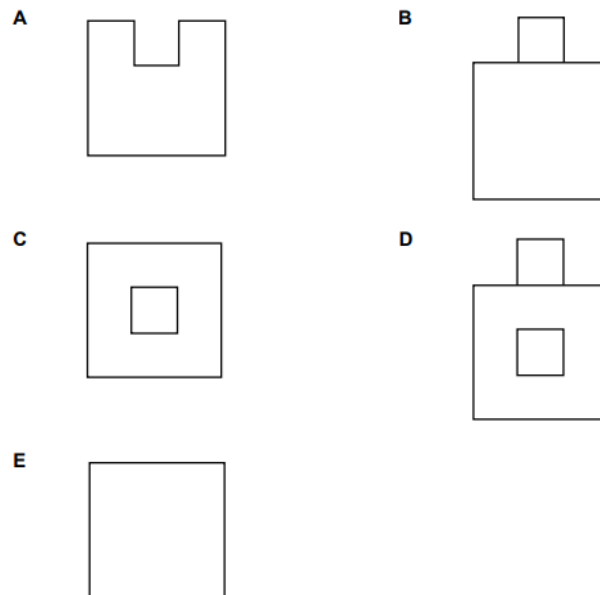
5. Laszlo is having a large conservatory built. The building company supplies a draft timeline of the project, showing when each part of the conservatory is to be built.

Each blocked square on the plan represents one worker for one day.

How many days' labour will Laszlo have to pay for, and what is the maximum number of workers on site at the same time, if they all turn up as planned?

PREPARE FOUNDATIONS

BRICKWORK

ROOF

GLASS

DECORATE

April 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
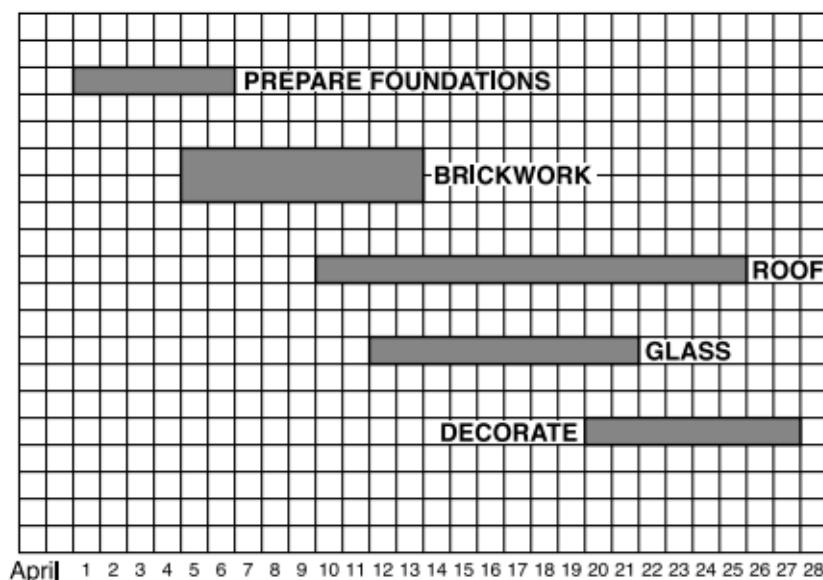
A   48 and 3   C   58 and 3   E   58 and 6

B   48 and 4   D   58 and 4

Section B [18 marks] – Write your answers on a separate sheet of paper.

Because I'm happy
Clap along if you feel like a room without a roof
Because I'm happy
Clap along if you feel like happiness is the truth
Because I'm happy
Clap along if you know what happiness is to you
Because I'm happy
Clap along if you feel like that's what you wanna do

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Happy is a song written and performed by American singer Pharrell Williams, from the *Despicable Me 2* soundtrack album. It reached no.1 in the UK charts in 2013.

(a)   How many similes are there in the chorus shown above?   [1]

(b)   Explain briefly how the language in lines 2 and 4 is effective.   [3]

The World Happiness Report is an annual publication of the United Nations Sustainable Development Solutions Network. It contains rankings of national happiness based on respondent ratings of their own lives which the report correlates with various other measures.
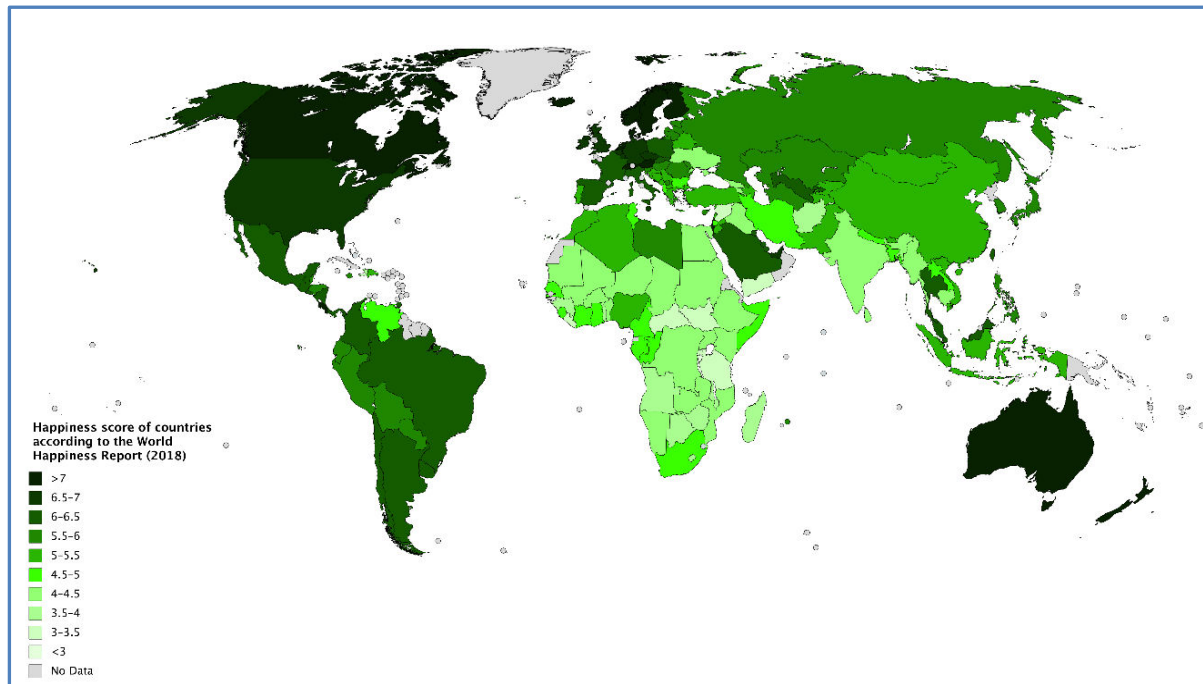
In March 2019, Finland was ranked the happiest country in the world for the second year in a row.

World happiness report 2019 (ranked by a ladder survey on a scale of 0-10)

1	Finland	7.632
2	Norway	7.594
3	Denmark	7.555
4	Iceland	7.495
5	Switzerland	7.487
6	Netherlands	7.441
7	Canada	7.328
8	New Zealand	7.324
9	Sweden	7.314
10	Australia	7.272

(c)   Eight of the top ten countries fall into two distinct cultural groupings. Describe what these groupings are and identify the countries in each grouping.   [4]

This ranking of (inter)national happiness is based on a ladder survey. Nationally representative samples of respondents are asked to think of a ladder, with the best possible life for them being a 10, and the worst possible life being a 0. They are then asked to rate their own current lives on that 0 to 10 scale.

Critics have argued that this kind of survey brings responses based too much on income concerns – for example, Colombia came 37th in the 2018 Happiness Index but 1st in the world rated by the quality of 'daily emotional experience'.

(d)   You are asked to compile a table of the average 'happiness' of different regions of the UK but you decide not to use direct surveys. You have access to all economic and social information available to the government. What kinds of data might you need in order to estimate the different 'happiness' levels of the regions?   [4]

Measuring 'happiness' of a grouping of people may be misleading because happiness is an individual matter: for the Dalai Lama, Gandhi, Tolstoy and several others, happiness is an individual choice that is independent of the society, its structures and enabling or dis-enabling conditions, and not something to be measured using variables that try to measure a nation's well-being. This means therefore that one cannot have a happy or unhappy nation, only happy or unhappy individuals.

(e)   What do you think is meant by **happiness**? Attempt a definition.   [2]

(f)   Should happiness be a fundamental human right?   [4]

Read the article from *The Guardian* below and answer the questions.

The Earth is flat? What planet is he on?

The Flat Earth Society has become a byword for sticking your head in the sand, whatever the scientific facts. David Adam tries to make sense of its new president, Daniel Shenton.

Illustration in a Norwegian journal, 1922.

"There is no unified flat Earth model," Shenton suggests, "but the most commonly accepted one is that it's more or less a disc, with a ring of something to hold in the water. The height and substance of that, no one is absolutely sure, but most people think it's mountains with snow and ice."

The Earth is flat, he argues, because it appears flat. The sun and moon are spherical, but much smaller than mainstream science says, and they rotate around a plane of the Earth, because they appear to do so.

He is mainstream on most issues, but not all. For when Shenton rides his motorbike, he says it is not gravity that pins him to the road, but the rapid upward motion of a disc-shaped planet. Countries, according to him, spread across this flat world as they appear to do on a map, with Antarctica as a ring of mountains strung around the edge. And, yes, you can fall off.

The scientific evidence is stacked against Shenton, obviously, just as it is against those who think global warming is a hoax and that the dead stalk the Earth as ghosts – but that doesn't appear to trouble him in the least.

The Flat Earth Society was originally formed as the Universal Zetetic Society in 1884, after the Greek word zeteo, "to seek". Zeteticism, Shenton says, emphasises experience and reason over the "trusting acceptance of dogma" – or, it seems, overwhelming evidence. Only a personal trip into space to see the world as it is for himself would persuade him. "But even then, in seeing it, I would have to be convinced there weren't any tricks involved."

The International Flat Earth Society was formally founded in 1956. Shenton resurrected the society and claimed its presidency last year, following years of inaction after the death of former president Charles Johnson in 2001, who had some 3,000 registered followers. He has so far recruited 60 members through the society's website, which boasts about 9,000 visitors to its discussion forums.

It may sound like Shenton is playing games, that the reborn society is a clever metaphor or marketing tool for another cause – but he insists he is serious.

"I haven't taken this position just to be difficult. To look around, the world does appear to be flat, so I think it is incumbent on others to prove decisively that it isn't. And I don't think that burden of proof has been met yet."

From *The Guardian*, 23 Feb 2010 (abridged)
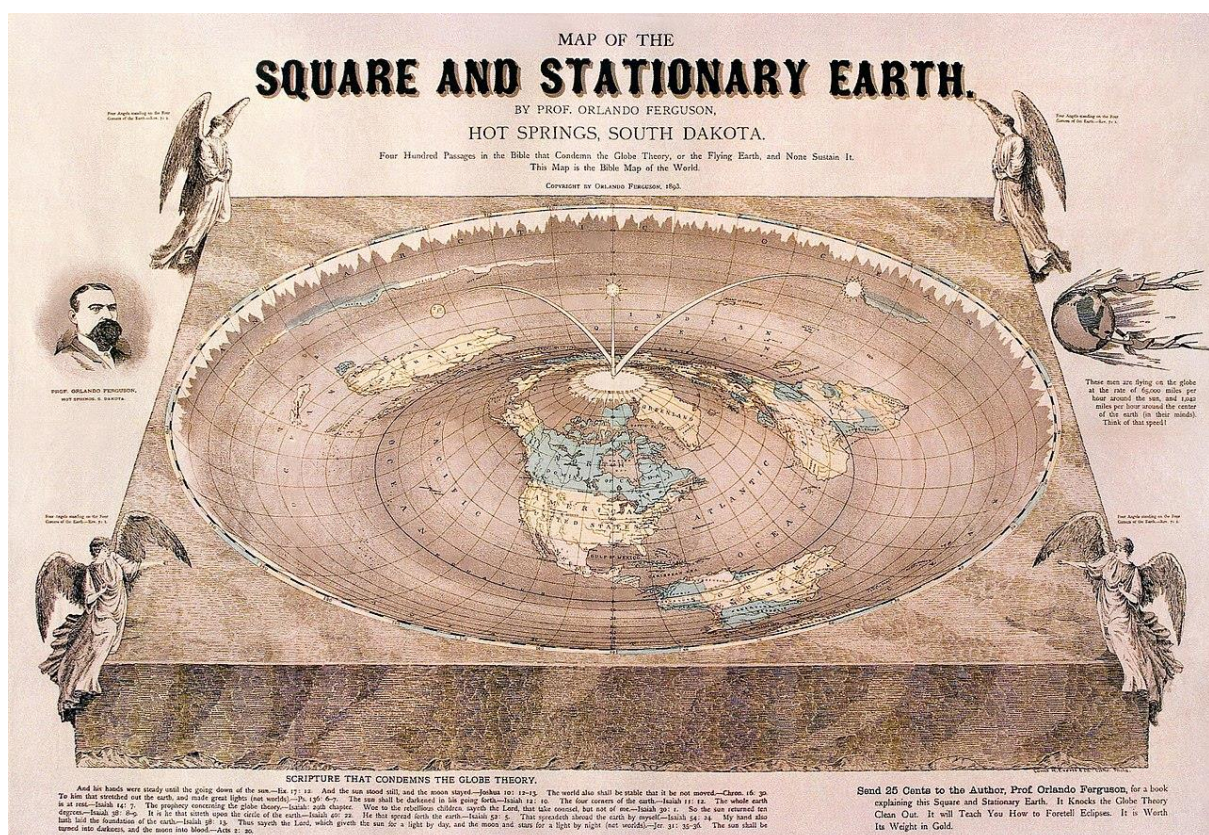
Flat Earth map drawn by Orlando Ferguson in 1893.
The map contains several references to biblical passages as well as various jabs at the "Globe Theory".

(a)   According to Shenton, where is the centre of the Earth located?   [1]

(b)   What do you think the word **dogma** means?   [2]

(c)   Give at least five pieces of evidence that disprove the Flat Earth theory.   [6]

(d)   Now imagine that the Flat Earth Society is right. Describe three separate arguments you
        could use to try to convince a friend that that Flat Earth theory is correct.   [5]

9

Section D [18 marks] – Write your answers on a separate sheet of paper.

(There are no marks for demonstrating calculations in this question)

The table below contains details of the medals won at the 2016 Olympics by 10 countries together with the Gross Domestic Product per capita (per individual) and the population.

2016 Olympics – Medals Table					
Country	Gold	Silver	Bronze	GDP per capita ($) (IMF)	Population (millions)
China	26	18	26	18,100	1,419
Ethiopia	4	1	2	2,300	109
Great Britain/UK	27	23	17	45,700	67
Ireland	0	2	0	78,700	5
Jamaica	6	3	2	9,400	3
Japan	12	8	21	44,200	127
Kenya	6	6	1	3,700	52
Singapore	1	0	0	100,300	6
Switzerland	3	2	2	64,600	9
United States	46	37	38	62,600	329

If you create rank orders in terms of their performance in the Olympics, there's more than one way of saying which country comes out top.

(a)   Using only the numbers of medals, give the countries you would rank **second** and **tenth** in this list, explaining how you came to a judgement.   [4]

(b)   Now, using more of the available information, choose a different way of ranking these countries in terms of their performance, explaining the reasons behind your new ranking and giving which countries listed here are likely to come out higher this time. Your answer should also explain the disadvantage of using the ranking method you used in part (a).   [6]

(c)   By combining the GDP per capita and the population of each country, what other measure can be calculated? How might this number have a correlation to the success of a country in the Olympic Games?   [3]

(d)   The modern Olympic Games were started by Baron Pierre de Coubertin in 1896. Coubertin stated that the important thing in life is not the triumph but the struggle: the essential thing is not to have conquered but to have fought well.

        To what extent can it be argued that the modern Olympic Games fail to live up to this ideal?   [5]

Section E [16 marks] – Write your answer on a separate sheet of paper.

Choose **one** of the titles below and write a short essay addressing the question.

Marks will be given for clear, interesting, and considered arguments.

1.   'Image is now more important than achievement.' Discuss.

2.   Is private education justifiable?

3.   'It is better to read the book than see the film.' Discuss.

END OF THE PAPER

Name: _____ School _____

Write your answers to Section A here.

1.
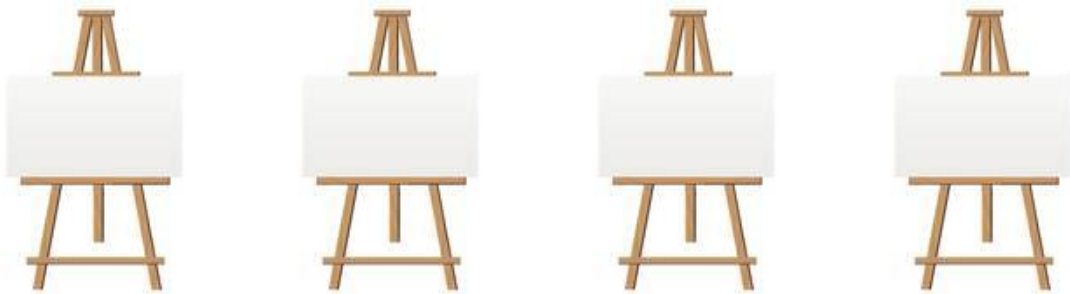
House:

_____   _____   _____   _____

Style:

_____   _____   _____   _____

[6]

Circle the correct letter (only one for each question):

2.   **A**   **B**   **C**   **D**   **E**   [2]

3.   **A**   **B**   **C**   **D**   **E**   [2]

4.   **A**   **B**   **C**   **D**   **E**   [2]

5.   **A**   **B**   **C**   **D**   **E**   [2]

The King's School Canterbury

13+ Scholarship Examinations 2017

GENERAL PAPER

1 hour 15 minutes

PLEASE NOTE THAT THERE ARE NO <u>RIGHT</u> ANSWERS TO MOST OF THE QUESTIONS ON THIS PAPER. THEY ARE DESIGNED TO SHOW HOW YOU THINK, RATHER THAN WHAT YOU KNOW.

There are **<u>60 marks</u>** available for this paper:

20 for Section A, 20 for Section B, 20 for Section C.

Your marks from the **Research Task (20)** will be incorporated into your overall General Paper grade.

- **All answers should be written clearly on the writing paper provided.**

- **Write your name clearly at the top of each piece of writing paper used.**

- **Start each section on a new sheet of paper.**

Section A [20 marks]

After reading the article extracts write brief answers to the questions below.

The first extract is adapted from "Will Democracy Survive Big Data and Artificial Intelligence?" (*Scientific American*, 25 February 2017). The article first appeared in *Spektrum der Wissenschaft* as "Digitale Demokratie statt Datendiktatur."[1]

We are in the middle of a technological upheaval that will transform the way society is organized.

The digital revolution is in full swing. How will it change our world? The amount of data we produce doubles every year. In other words: in 2016 we produced as much data as in the entire history of humankind until 2015. Every minute we produce hundreds of thousands of Google searches and Facebook posts. These contain information that reveals how we think and feel. Soon, the things around us, possibly even our clothing, also will be connected with the Internet. It is estimated that in 10 years' time there will be 150 billion networked measuring sensors, 20 times more than people on Earth. Then, the amount of data will double every 12 hours.

Everything will become intelligent; soon we will not only have smart phones, but also smart homes, smart factories and smart cities. Should we also expect these developments to result in smart nations and a smarter planet?

The field of artificial intelligence is, indeed, making breathtaking advances. In particular, it is contributing to the automation of data analysis. Artificial intelligence is no longer programmed line by line, but is now capable of learning, thereby continuously developing itself. Recently, Google's DeepMind algorithm taught itself how to win 49 Atari games. Algorithms can now recognize handwritten language and patterns almost as well as humans and complete some tasks better than them. They are able to recognise and describe the contents of photos and videos. Today 70% of all financial transactions are performed by algorithms. News content is, in part, automatically generated. This all has radical economic consequences: in the coming 10 to 20 years around half of today's jobs will be threatened by algorithms. 40% of today's top 500 companies will have vanished in a decade.

It can be expected that supercomputers will soon surpass human capabilities in almost all areas—somewhere between 2020 and 2060. Experts are starting to ring alarm bells. Technology visionaries, such as Elon Musk from Tesla Motors, Bill Gates from Microsoft and Apple co-founder Steve Wozniak, are warning that super-intelligence is a serious danger for humanity, possibly even more dangerous than nuclear weapons. Is this alarmism?

One thing is clear: the way in which we organize the economy and society will change fundamentally. We are experiencing the largest transformation since the end of the Second World War; after the automation of production and the creation of self-driving cars the automation of society is next. With this, society is at a crossroads, which promises great opportunities, but also considerable risks. If we take the wrong decisions it could threaten our greatest historical achievements.

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[1] https://www.scientificamerican.com/article/will-democracy-survive-big-data-and-artificial-intelligence

The second extract is adapted from *The Express*, 23 June 2016[2].

Robots could be given citizen rights under bizarre EU suggestions

In the 1950s Asimov predicted robots would eventually have to adhere to laws, because the combined potential of a sophisticated physical mechanism, androids with human features, and artificial intelligence (AI) was too dangerous.

But, it appears Brussels bureaucrats fear this fiction will become a reality and they are considering including a "new robot category next to natural and lawful people: the electronic person".

The report suggests AI could "surpass human intelligence within a few decades". Some members of the European Parliament fear that without controls on robots humans may no longer be in charge of their own fate.

If Asimov's predictions are being followed by the EU leaders, then a blueprint already exists. The author already outlined the "Three Laws of Robotics" in his novels that inspired Hollywood blockbuster *I Robot* in 2004.

These laws were: that a robot must not harm any human, it has to obey humans, and it cannot harm humanity.

EU politicians point towards the fact that robots could become or be made self-aware by means of artificial intelligence. Their report says robots "would be equipped with certain rights and responsibilities and be held responsible for any damage caused".

Using information in the articles, from your digital research tasks and your general knowledge, write brief answers to the following questions.

1.   Explain what you understand by 'intelligence' and how artificial intelligence may be
       different to human intelligence.   **[4 marks]**

2.   The terms 'robot' and 'computer' are sometimes used interchangeably. Explain what you
       think are the differences.   **[3 marks]**

3.   Do you think the 'Three Laws of Robotics' would be sufficient if they were to be
       programmed into robots as safeguards?   **[3 marks]**

A computer can now consistently beat the world champion at chess, one of the most complex games ever invented. The IBM computer 'Deep Blue' first beat the world champion in 1996.

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4.   Should computers as 'intelligent' as Deep Blue have rights?   **[5 marks]**

5.   Outline some of the opportunities and risks for human society arising from the
       development of artificial intelligence.   **[5 marks]**

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[2] http://www.express.co.uk/news/science/682759/RIGHTS-FOR-ROBOTS-EU-reveals-plans-for-new-class-of-AI-electro-person

Section B [20 marks]

1.   **Choose five meanings of the word 'thought' from the list below, making clear the numbers of your choices, and write a sentence for each showing how the word is used in that way.**

   Credit will be given for the quality and imagination of your examples.   **[8 marks]**

The word "thought" comes from the Old English word "þoht" meaning "to conceive of in the mind, to consider".

The word "thought" in English now may mean any of the following:

1.   a single product of thinking or a single idea
2.   the product of mental activity
3.   the act or system of thinking
4.   the capacity to think, reason, imagine, and so on
5.   the consideration of or reflection on an idea
6.   recollection or contemplation
7.   half-formed or imperfect intention
8.   anticipation or expectation
9.   consideration, attention, care, or regard
10.   judgment, opinion, or belief
11.   the ideas characteristic of a particular place, class, or time
12.   the state of being conscious of something
13.   tending to believe in something, especially with less than full confidence

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2.   **Read the passage and answer the questions below.**

"Cogito ergo sum" is a philosophical proposition by René Descartes (1596-1650) usually translated into English as "I think, therefore I am".

Descartes explained, "We cannot doubt of our existence while we doubt…". A fuller form, by Antoine Léonard Thomas, expands upon Descartes' intent: "dubito, ergo cogito, ergo sum"*.

*"dubito" means "I doubt"

(a)   What do you think Descartes meant by 'cogito ergo sum'?   **[3 marks]**

(b)   What flaws can you spot in his logic?   **[3 marks]**

The Thinker

3. **Read the information below to deduce the order of the houses' statues and the material from which each was made.** **[6 marks]**

One summer term four houses at King's made one model each of Rodin's famous statue, *The Thinker*. They were arranged in a line on Green Court and made from four different unusual materials.
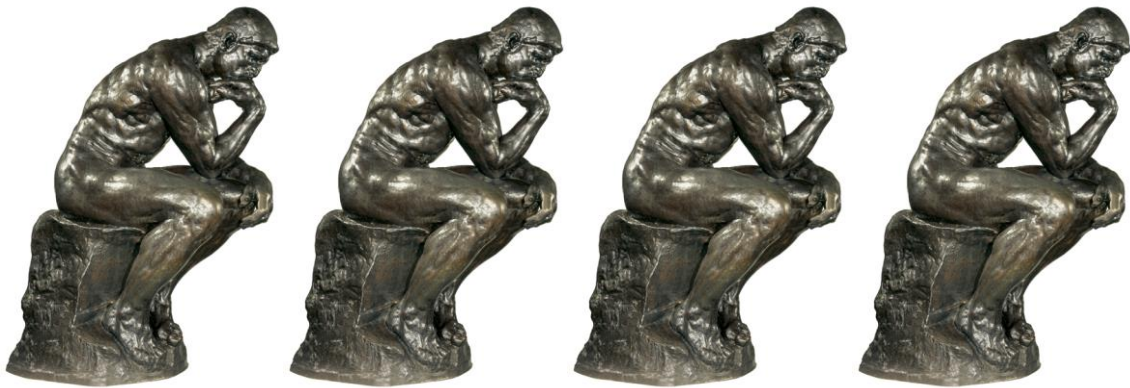
Tradescant's entry is somewhere to the left of the **papier-mâché** one; the third one along from the left was, oddly enough, made of **jelly**. **Meister Omers** chose to use **plasticine**. **Walpole**'s was not at either end, but placed somewhere to the right of the (knitted) **woollen** model. **Kingsdown**'s was on the extreme right, whilst the artwork furthest to the left was not the one made from **plasticine**.

Lay out your answer like this:

(position)   Left   Second from left   Second from right   Right

(house)   …………………….   ………………………..   ……………………………   …………………………

(material)   …………………….   ………………………..   ……………………………   …………………………

Section C [20 marks]

You are advised to spend 25-30 mins on this section.

All Souls College at the University of Oxford runs an annual competition for Prize Fellowships.

The questions below are taken from a recent All Souls General Paper.

Choose <u>one</u> of these and write an essay addressing that question.   **[20 marks]**

1.   Should you be allowed internet access during this exam?*

2.   Do we need borders?

3.   'Thinking is my fighting.' (Virginia Woolf, 1940) Discuss.

4.   Is rising life expectancy a good thing?

*assume 'this exam' means this main General Paper

END OF EXAMINATION