



CONCOURS ARTS ET MÉTIERS ParisTech - ESTP- ARCHIMEDE

QCM – ANGLAIS FACULTATIF MP - PC - PSI

Durée 1 h

Si, au cours de l'épreuve, un candidat repère ce qui lui semble être une erreur d'énoncé, d'une part il le signale au chef de salle, d'autre part il le signale sur sa copie et poursuit sa composition en indiquant les raisons des initiatives qu'il est amené à prendre.

Pour cette épreuve, l'usage des machines (calculatrices, traductrices,...) et de dictionnaires est interdit.

INSTRUCTIONS GÉNÉRALES

Définition et barème :

QCM en trois parties avec quatre propositions de réponse par item.

- I. Compréhension : 12 questions (10 points sur 20)
- II. Lexique : 12 questions (5 points sur 20)
- III. Compétence grammaticale : 15 questions (5 points sur 20)

Réponse juste : +3

Pas de réponse : 0

Réponse fausse ou réponses multiples : -1

Instructions :

Lisez le texte et répondez ensuite aux questions.

Choisissez parmi les quatre propositions de réponse (A, B, C ou D) celle qui vous paraît la mieux adaptée. Il n'y a qu'une seule réponse possible pour chaque item.

Reportez votre choix sur la feuille de réponse.

Dictionnaire : interdit

ANGLAIS

HAPPINESS IS IN YOUR DNA

The idea that the human personality is a blank slate, to be written upon only by experience, prevailed for most of the second half of the 20th century. Over the past two decades, however, that notion has been undermined. Studies comparing identical with non-identical twins have helped to establish the heritability of many aspects of behaviour, and examination of DNA has
5 uncovered some of the genes responsible. Recent work on both these fronts suggests that happiness is highly heritable.

As any human being knows, many factors govern whether people are happy or unhappy. External circumstances are important: employed people are happier than unemployed ones and better-off people than poor ones. Age has a role, too: the young and the old are happier than the middle-
10 aged. But personality is the single biggest determinant: extroverts are happier than introverts, and confident people happier than anxious ones.

That personality, along with intelligence, is at least partly heritable is becoming increasingly clear; so, presumably, the tendency to be happy or miserable is, to some extent, passed on through DNA. To try to establish just what that extent is, a group of scientists from University
15 College, London; Harvard Medical School; the University of California, San Diego; and the University of Zurich examined over 1,000 pairs of twins from a huge study on the health of American adolescents. In “Genes, Economics and Happiness”, a working paper from the University of Zurich’s Institute for Empirical Research in Economics, they conclude that about a third of the variation in people’s happiness is heritable. That is along the lines of, though a little
20 lower than, previous estimates on the subject.

But while twin studies are useful for establishing the extent to which a characteristic is heritable, they do not finger the particular genes at work. One of the researchers, Jan-Emmanuel De Neve, of University College, London, and the London School of Economics, has tried to do just that, by
25 picking a popular suspect – the gene that encodes the serotonin-transporter protein, a molecule that shuffles a brain messenger called serotonin through cell membranes – and examining how variants of that gene affect levels of happiness.

Serotonin is involved in mood regulation. Serotonin transporters are crucial to this job. The serotonin-transporter gene comes in two functional variants – long and short. The long one produces more transporter-protein molecules than the short one. People have two versions
30 (known as alleles) of each gene, one from each parent. So some have two short alleles, some have two long ones, and the rest have one of each.

The adolescents in Dr De Neve’s study were asked to grade themselves from very satisfied to very dissatisfied. Dr De Neve found that those with one long allele were 8% more likely than those with none to describe themselves as very satisfied; those with two long alleles were 17%
35 more likely. Which is interesting. Where the story could become controversial is when the ethnic origins of the volunteers are taken into account. All were Americans, but they were asked to classify themselves by race as well. On average, the Asian Americans in the sample had 0.69 long genes, the black Americans had 1.47 and the white Americans had 1.12.

That result sits comfortably with other studies showing that, on average, Asian countries report
40 lower levels of happiness than their GDP per head would suggest. African countries, however, are

all over the place, happinesswise. But that is not surprising, either. Africa is the most genetically diverse continent, because that is where humanity evolved (Asians, Europeans, Aboriginal Australians and Amerindians are all descended from a few adventurers who left Africa about 60,000 years ago). Black Americans, mostly the descendants of slaves carried away from a few
45 places in West Africa, cannot possibly be representative of the whole continent.

That some populations have more of the long version of the serotonin-transporter gene has been noticed before, though the association has previously been made at a national, rather than a racial, level. In a paper in the Proceedings of the Royal Society, published in 2009, Joan Chiao and Katherine Blizinsky of Northwestern University, in Illinois, found a positive correlation
50 between higher levels of the short version of the gene and mood disorders (China and Japan have lots of both) and with collectivist political systems. Their hypothesis is that cultures prone to anxiety tend towards systems that emphasise social harmony and away from ones that emphasise individuals' independence of each other.

The Economist, October 15, 2011
(Abridged and adapted)

I. COMPRÉHENSION

Choisissez la réponse qui vous paraît la plus adéquate en fonction du sens du texte.

1. From **line 1 to line 6**, it should be understood that in the second half of the 20th century, it was believed that human personality was:
(A) Quite innate.
(B) Partly due to experience.
(C) Totally acquired.
(D) Entirely influenced by genetic factors.
2. From **line 7 to line 11**, it should be understood that:
(A) One's social status doesn't interfere in their level of happiness.
(B) There is a link between social status and level of happiness.
(C) The happier you are, the richer you will be.
(D) The poorest people are also the happiest.
3. From **line 7 to line 11**, it should be understood that:
(A) Personality has no impact on a person's happiness.
(B) Happiness is largely influenced by personality.
(C) There are various equal factors that determine happiness and personality is one of them.
(D) Happiness determines a person's personality.
4. From **line 12 to line 20**, it should be understood that:
(A) Today it is assumed that intelligence is completely linked to genetic factors.
(B) Personality partly determines a person's intelligence.
(C) A person's personality and intelligence are determined by their experience.
(D) Personality and intelligence are linked to hereditary factors.
5. From **line 21 to line 26**, it should be understood that:
(A) Researchers have clearly identified the gene which is responsible for happiness.
(B) Researchers have discarded the serotonin-transporter protein as being responsible for happiness.
(C) Researchers suspect the serotonin-transporter protein of being an obstacle to happiness.
(D) Researchers are still unable to determine the specific genes responsible for happiness.

6. From **line 27 to line 31**, it should be understood that:
- (A) Mood regulates the serotonin level.
 - (B) Mood is determined by the serotonin level.
 - (C) Mood and serotonin regulate each other.
 - (D) Serotonin doesn't interfere in mood.
7. From **line 32 to 38**, it should be understood that:
- (A) Adolescents with one long allele are not as happy as the ones with none.
 - (B) Adolescents with one long allele are happier than the ones with two.
 - (C) Adolescents with two long alleles are the happiest.
 - (D) Adolescents with two long alleles are more likely to be dissatisfied.
8. From **line 39 to 45**, it should be understood that:
- (A) Black Americans are happier than Asian and White Americans.
 - (B) White Americans are more satisfied than Black and Asian Americans.
 - (C) Asian Americans are more satisfied than White and Black Americans.
 - (D) White Americans are the happiest.
9. From **line 39 to line 45**, it should be understood that:
- (A) The level of happiness in Asian countries is as low as their GDP per head.
 - (B) The GDP per head in Asian countries determines the people's happiness.
 - (C) The level of happiness in Asian countries reflects the GDP per head.
 - (D) The level of happiness in Asian countries is surprisingly not representative of the GDP per head.

10. From **line 39 to 45**, it should be understood that:
- (A) Because most Black Americans are descendants of slaves, they are not happy.
 - (B) Though they are descendants of slaves, most Black Americans are not happy.
 - (C) People in Africa are not happy, thus the Black Americans who are descendants of slaves aren't either.
 - (D) Though most Black Americans come from Africa, they can't all be happy.
11. From **line 46 to 53**, it should be understood that:
- (A) A lower level of the long version of the gene triggers mood disorders.
 - (B) Mood disorders are linked to the level of the long version of the gene.
 - (C) The short version of the gene has no effect on mood disorders.
 - (D) A higher level of the short version of the gene entails mood disorders.
12. From **line 46 to 53**, it should be understood that:
- (A) Anxiety-prone cultures are less focused on social harmony.
 - (B) Anxiety-prone cultures are more individualistic.
 - (C) Anxiety-prone cultures tend to favour individualism over social harmony.
 - (D) In anxiety-prone communities, people tend to be less individualistic.

II. LEXIQUE

Choisissez la réponse qui vous paraît la plus appropriée en fonction du contexte.

13. "slate" (**line 1**) means:
- (A) sheet of smooth paper
 - (B) thin plate of fine-grained rock
 - (C) pad
 - (D) file

14. "prevailed" (**line 2**) means:
- (A) was foreseen
 - (B) was widespread
 - (C) was worth
 - (D) was understood

15. "undermined" (line 3) means:

- (A) weakened
- (B) underestimated
- (C) under mentioned
- (D) underlined

16. "uncovered" (line 5) means:

- (A) discovered
- (B) revealed
- (C) uncoded
- (D) eliminated

17. "better-off" (line 8) means:

- (A) middle-class
- (B) upper-class
- (C) wealthier
- (D) healthier

18. "presumably" (line 13) means:

- (A) maybe
- (B) definitely
- (C) certainly
- (D) probably

19. "finger" (line 22) means:

- (A) touch
- (B) point to
- (C) handle
- (D) find

20. "shuffles" (line 25) means:

- (A) mixes up
- (B) removes
- (C) interprets
- (D) catches

21. "involved" (line 27) means:

- (A) included
- (B) encircled
- (C) implicated
- (D) enclosed

22. "sample" (line 37) means:

- (A) community
- (B) area
- (C) number
- (D) specimen

23. "happinesswise" (line 41) means:

- (A) devoid of happiness
- (B) deprived of happiness
- (C) with a wide experience of happiness
- (D) similar to happiness

24. "prone to" (line 51) means:

- (A) subject to
- (B) not suffering from
- (C) advocating
- (D) favouring

III. COMPÉTENCE GRAMMATICALE

Parmi les quatre phrases proposées, choisissez celle qui est grammaticalement correcte.

25.

- (A) A lots of studies have compared identical with non-identical twins.
- (B) Lot of studies have compared identical with non-identical twins.
- (C) A lot of studies have compared identical with non-identical twins.
- (D) Lots of study have compared identical with non-identical twins.

26.

- (A) Work on the both of these fronts led the conclusion that happiness is heritable.
- (B) Work on both of these fronts led to the conclusion that happiness is heritable.
- (C) Work on the both these fronts led to the conclusion that happiness is heritable.
- (D) Work on these both fronts led to the conclusion that happiness is heritable.

27.

- (A) There is a great many factors that govern whether people are happy or not.
- (B) There are many a factors that govern whether people are happy or not.
- (C) There are a great many factor that govern whether people are happy.
- (D) There is a great many factor that governs whether people are happy or not.

28.

- (A) Unemployed people are less happier than employed people.
- (B) Unemployed people are not as happy as employed people.
- (C) Employed people are more happier than unemployed people.
- (D) Employed people are more happy than unemployed people.

29.

- (A) It is assumed that personality be partly heritable.
- (B) Personality is assumed to be partly heritable.
- (C) They assume that personality be partly heritable.
- (D) They assume personality be partly heritable.

30.

- (A) The researchers have been studied the subject for some time.
- (B) The researchers have being studying the subject for some time.
- (C) The researchers have been studying the subject since some time.
- (D) The researchers have been studying the subject for some time.

31.

- (A) They published their study for the first decade of the current century.
- (B) They published their study during the first decade of the current century.
- (C) They published their study while the first decade of the current century.
- (D) They published their study since the first decade of the current century.

32.

- (A) One of their hypotheses is that those cultures emphasise social harmony.
- (B) One of their hypothesis is that those cultures emphasise social harmony.
- (C) One of their hypothesises is that those cultures emphasise social harmony.
- (D) One of theirs hypothesis is that those cultures emphasise social harmony.

Parmi les quatre solutions proposées, choisissez, pour chacun des énoncés lacunaires suivants, celle qui vous paraît le compléter correctement.

33. Previous studies with the same proposals.

- (A) have already come up
- (B) already have come up
- (C) have come up already
- (D) have come already up

34. produces more transport-protein molecules.

- (A) The longer of two variant
- (B) The longer variant
- (C) The longest of the two variants
- (D) The longest variant of the two

35. taken into account, the story could become controversial.

- (A) If the ethnic origin were
- (B) If the ethnic origin was
- (C) If the ethnic origins was
- (D) Should the ethnic origins to be

36. they were all Americans, they were asked to classify themselves by race.

- (A) In spite
- (B) Despite
- (C) Although
- (D) In spite of

37. be partly heritable.
(A) It is assumed that personality
(B) Personality is assumed to
(C) They assume that personality
(D) It is assumed personality

38. The Amerindians' ancestors left Africa
- (A) sixty thousands years ago.
 - (B) sixty thousand years ago.
 - (C) sixty thousand of years ago.
 - (D) sixty thousands of years ago.

39. Africa is the most genetically diverse continent.
(A) It is all the less surprising than
(B) It is all less surprising
(C) It is all the less surprising that
(D) It is all the less surprising as

Fin de l'énoncé

