Key Points

- Candidates are advised to look carefully at the wording of prescribed titles in order to ascertain what kind of engagement with knowledge is being elicited
- Wherever possible, clear distinctions should be made between the processes involved in the production of knowledge and those involved in the consumption of knowledge

Aspects of essay content

As with previous sessions, a wide variety of examples was on offer in essays, but a preponderance of a particular group of them drew some concerns among examiners. Despite its length, the following is naturally only a subset.

1. Serendipitous discovery of penicillin by Alexander Fleming

2. Mark Rothko and environmental influences on his work

3. String theory and the role of evidence in the sciences

4. Margaret Mead's perspective during fieldwork in Samoa

5. The human aspects of the story of the discovery of DNA and of its structure from Friedrich Miescher to James Watson, Francis Crick and Rosalind Franklin

6. Bloodletting as an example of an obsolete practice in medical science

7. The value of the Enigma code and the work of Alan Turing

8. Alchemy as the necessary precursor to modern chemistry

9. Pablo Picasso and Guernica

10. Vincent van Gogh and Starry Night

11. Leonardo da Vinci, the Mona Lisa and Vitruvian Man

12. Isaac Newton and the compatibility of his scientific achievements and his religious orientation

13. Persistence of "anti-vaxxers" despite the exposure of Andrew Wakefield's claims in relation to MMR vaccine as fraudulent

14. The applications of imaginary numbers

15. Ludwig van Beethoven's deafness and reliance on "feeling"

16. Rounding of numbers (eg pi) as examples of simplification and inaccuracy in mathematics

17. Polynomials, factorisation and complexity

18. Music therapy as an application of knowledge in the arts

19. Different notations and ways of doing differentiation from Isaac Newton and Gottfried Leibniz

20. Thomas Edison and the invention of the light bulb

21. The Hiroshima bomb versus nuclear fission reactors with respect to the value of knowledge

22. Work in number theory by Pythagoras, Pierre de Fermat and Andrew Wiles

23. Membrane structure from Davson/Danielli to Singer/Nicholson and the fluid mosaic model

24. Galileo Galilei's house arrest and Pope John Paul II's admission of error in 1992

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25. Friedrich Wöhler's blow to vitalism with the non-biological synthesis of urea

26. Atomic theories from John Dalton to JJ Thompson to Ernest Rutherford to Niels Bohr to Erwin Schrödinger

27. Elizabeth Loftus and John Palmer on language and eye witnesses

28. Francesco Redi, Louis Pasteur and the disproof of spontaneous generation

29. Alfred Wegener and continental drift

30. Lera Boroditsky's article on Australian aboriginal orientation

31. Caloric vs kinetic theory with respect to "natural selection" in scientific knowledge

32. Leonhard Euler's equation allegedly having value without application

33. Development of heliocentrism from Aristarchus to Copernicus

34. Thalidomide prescribed for morning sickness and leprosy

35. The outcomes of the work of Fritz Haber for fertilizer and explosives

36. The Riemann hypothesis, large primes and Internet security

37. The Treaty of Versailles and the subsequent rise of Nazism in Germany

38. George Orwell's perspective as presented in Animal Farm

39. Thomas Young's double-slit experiment and wave-particle duality in physics

40. The ethics of Edward Jenner's work on smallpox and vaccination

41. August Kekulé's dream and the structure of benzene

42. Antonio Damasio and somatic marker theory

43. Fritz Fischer and the alleged causes of WWI

44. Occam's razor with respect to Albert Einstein's special relativity and Hendrik Lorentz's ether

45. Gregor Mendel and overly neat experimental results for segregation and independent assortment (also Robert Millikan and determination of the electric charge on the electron)

46. Jackson Pollock's art and the use of WOKs

47. The Amish and rejection of modern technology

48. The Phillips curve and transient accuracy in economics

49. Lock-and-key and induced fit models of enzyme action

50. Spherical and hyperbolic geometries as perspectives in mathematics

51. Confirmation bias and persistent error in the accepted human chromosome number

52. CERN and the Higgs boson as applied knowledge

53. Standard rival interpretations of the Cold War: traditional, revisionist, post-revisionist

54. Albert Einstein and the cosmological constant

55. Edwin Hubble and expansion of the universe

56. Ignaz Semmelweis and childbed fever

57. Conventional current and electron flow

58. The Nanjing massacre and perspectives

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59. Alfred Adler and schemas in psychology as the basis for perspectives

60. Biston betularia and industrial melanism as an example of natural selection

61. Detection of gravitational waves in accordance with predictions from Einstein's theory of general relativity

62. Feynman diagrams and quantum electrodynamics with respect to simplicity (!) and understanding

63. Physiology from Galen to the discovery of blood circulation by William Harvey

64. The complexity of the chemistry of photosynthesis as presented at various stages of education

65. The patient's "perspective" in connection with the use of placebos in medical testing

66. Heinrich Hertz and the subsequent application of radio waves

From this list, a number of rough distinctions can be made.

Some examples (e.g. 9, 10, 20, 41, 58) appeared with great regularity but, with some additional thought, could have been substituted by others that would function at least equally effectively, and perhaps have offered additional insights.

Some (e.g. 1, 15, 18, 27, 30) have "gone viral" and could be found in many essays – even in the service of different titles. Examples of this type tend to gain momentum, persist over a few sessions and then recede.

Some examples (e.g. 25, 26) stem directly from candidate experience in other DP courses, and as such are to be welcomed as evidence for a primary aim of TOK in action. However, there may be other such points of contact across the diploma that could also be exploited. Candidates often included their own experiences with extended essays and internally assessed tasks, and this is to be encouraged as long as they are described in enough detail to illustrate the claims at large.

Many of the examples above do have much potential when they have been mastered by candidates and applied in situations where they support or illustrate the exact claims being made about knowledge. Unfortunately, this is often not the case, and they are sometimes treated with a laziness that can border on disrespect.

Examiners are aware that the ideal of the TOK essay as the culmination of the student's personal adventure to date in knowledge is perhaps unrealistic for many candidates on grounds of the limits of personal experience or motivation, but it must be pointed out that the constraints imposed by these factors can be exacerbated by the temptation to rely on external sources designed specifically to "help" with the task. As there is a finite quantity of such material available, shared patterns of essay structure and content across schools often become evident to examiners. If a candidate's first move is to search the internet for material that responds directly to a prescribed title, there is no way back from the "contamination" of thought that has occurred, and the short-circuiting of the process of internalization often leads to correspondingly poor work. Teachers are strongly urged to lead their candidates to formulate a personal and independent response to a title before allowing the wider world into the task that lies before them.

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