
UNIVERSITI SAINS MALAYSIA

Second Semester Examination
Academic Session 2007/2008

April 2008

PGT 311E – CHEMISTRY TEACHING METHODS
[KAEDAH MENGAJAR KIMIA]

Duration: 2 hours
[Masa : 2 jam]

Please ensure that this examination paper consists of **THREE** printed pages of printed material before you begin the examination.

*[Sila pastikan bahawa kertas peperiksaan ini mengandungi **TIGA** muka surat yang bercetak sebelum anda memulakan peperiksaan ini].*

INSTRUCTION:

Answer **ALL** questions in this paper.

Students are allowed to answer all questions in English **OR** Bahasa Malaysia.

ARAHAN :

Jawab **SEMUA** soalan di dalam kertas peperiksaan ini].

Pelajar dibenarkan menjawab semua soalan dalam Bahasa Inggeris **ATAU** Bahasa Malaysia.

...2/-

Answer ALL Questions

1. (a) State the four characteristics of an instructional theory. (8 marks)
- (b) State the four steps in developing an instructional theory. (8 marks)
- (c) Describe briefly your instructional theory based on the four steps listed in 1 (b). (24 marks)
2. (a) Compare and contrast both Piaget's and Vygotsky's theory of cognitive development. (10 marks)
- (b) Discuss three characteristics of a constructivist teacher. (12 marks)
- (c) Discuss one approach of teaching chemistry that is appropriate to the cognitive developmental level of secondary school students. Provide justification for your answer. (13 marks)
3. (a) Define green chemistry (3 marks)
- (b) State three principles of green chemistry (9 marks)
- (c) Provide a brief rationale for the integration of green chemistry in the secondary chemistry curriculum. (13 marks)

TERJEMAHAN

Jawab **SEMUA** soalan

1. (a) Nyatakan empat ciri teori pengajaran. (8 markah)
- (b) Nyatakan empat langkah dalam membina teori pengajaran. (8 markah)
- (c) Huraikan dengan ringkas teori pengajaran anda berpandukan empat langkah yang disenaraikan dalam 1(b). (24 marks)

2. (a) Banding bezakan kedua-dua teori perkembangan kognitif Piaget dan Vygotsky. (10 marks)
- (b) Bincang tiga ciri guru konstruktivis. (12 marks)
- (c) Bincang satu pendekatan pengajaran kimia yang sesuai dengan tahap perkembangan kognitif pelajar-pelajar sekolah menengah. Beri justifikasi bagi jawapan anda. (13 marks)

3. (a) Beri definisi kimia hijau (green chemistry) (3 marks)
- (b) Nyatakan tiga prinsip kimia hijau. (9 marks)
- (c) Beri rasional yang ringkas bagi pengintegrasian kimia hijau dalam kurikulum kimia peringkat menengah. (13 marks)