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1 Introduction

The purpose of this document is to provide centres with feedback on the performance of candidates in the June 2014 examination for 6165-073 Structural Elements, Geology, Soil Mechanics and Hydraulics 4 Principles.
## 2 Feedback on candidate performance

### General feedback

The following comments are intended to help students prepare for the examination by having a better understanding of what is expected of them. The feedback within this report would also be valuable to tutors in understanding candidates’ difficulties in answering questions and the areas where more guidance is required.

The June 2014 series question paper was found to be in accordance with the qualification requirements.

Candidates appeared to have no issues with the paper format.

In general the paper was well received by candidate with a significant performing well in the paper. Centres are reminded to teach to the syllabus if candidates are to perform better in this subject.

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| 1        | 73.41       | Most achieved some marks but many only about half of the allocated marks  
  a) The description of discontinuity types was only very briefly attempted by most candidates. Some diagrams were poor in detail.  
  b) Most scored few marks, but few achieved all full marks for the correct identification of the rock types.  
  c) This was poorly attempted by many students, some marks were awarded but responses often were unclear or not specific to the mineral being described. |
| 2        | 73.50       | a) Most achieved candidates achieved low marks for this section of the question, with some candidates either left the question blank or gave generic descriptions not specific to the method indicated.  
  b) Most candidates scored low marks. Many candidates simply described a construction site investigation rather than a specific site investigation report concerning soil analysis. |
| 3        | 73.44  
  73.49 | a) This was a similar question in previous exams this was generally well answered by most candidates and score a few marks. A large number of candidates failed to correctly substitute values into part (ii).  
  b) This was also a similar question in previous exams this was generally well answered by most candidates, often candidates failed to identify that the thrust would occur 1.5 m from the base. |
| 4        | 73.46  
  73.49 | a) Generally well answered by many candidates. Some diagrams were very weak in detail and lacked correct axes.  
  b) Most candidates attempted this question but diagrams often had a vertical axis which did not allow for cu to be calculated. |
| 5        | 73.58  
  73.64  
  73.73 | a) Generally satisfactorily attempted by most candidates although a significant proportion did not clearly explain the definition of Archimedes’ principle clearly. Explanations of Reynolds number were often limited to a formula with no or only brief explanations.  
  b) This was poorly answered by many candidates. Explanations and diagrams were often weak despite similar questions were used in previous series. |
| 6        | 73.54  
  73.75 | a) Satisfactorily attempted. A few candidates failed to use a value for g or did not subtract the two relevant values. As this was a question similar in recent series, a significant proportion of students were able to achieve some marks.  
  b) Many candidates’ calculations of m, the wetted perimeter area, were incorrect. Marks were awarded for follow through but students often were unable to substitute values into the equation and achieve a sensible value. |
a) A similar asked in previous series. A few candidates achieved full
b) Many learners were able to start this problem but then got confused
with the substitution of values into expressions and the final value of
Q was often unrealistic and ultimately incorrect.

Responses to this task were mixed. Candidates often were able to
calculate the safe load and the maximum permitted deflection. However,
the calculation of the actual deflection for the loading applied did result in
many incorrect calculations occurring.

This was well attempted by many candidates. Some candidates either
calculated the slenderness ratio incorrectly or in calculating the safe load
poor manipulation of indices took place resulting in an incorrect load
being calculated.

This was attempted well by many candidates. Most candidates were able
to calculate the total load and maximum moment correctly. Many were
then able to calculate the correct design of reinforcement. In a small
number of cases values did not correspond to previous calculations.

**Forthcoming Exam Dates are:**

03 December 2014
10 June 2015