
UNIVERSITI SAINS MALAYSIA

First Semester Examination
2013/2014 Academic Session

June 2014

EAS 354/3 – Timber and Steel Structural Design [Rekabentuk Struktur Kayu dan Keluli]

Duration : 3 hours
[Masa : 3 jam]

Please check that this examination paper consists of **SEVENTEEN (17)** pages of printed material including **SEVEN (7)** appendices before you begin the examination.

[Sila pastikan bahawa kertas peperiksaan ini mengandungi **TUJUH BELAS (17)** muka surat yang bercetak termasuk **TUJUH (7)** lampiran sebelum anda memulakan peperiksaan ini.]

Instructions : This paper contains **SIX (6)** questions. Answer **FIVE (5)** questions.

Arahan : Kertas ini mengandungi **ENAM (6)** soalan. Jawab **LIMA (5)** soalan.

All questions **MUST BE** answered on a new page.

[Semua soalan **MESTILAH** dijawab pada muka surat baru].

In the event of any discrepancies, the English version shall be used.

[Sekiranya terdapat percanggahan pada soalan peperiksaan, versi Bahasa Inggeris hendaklah diguna pakai].

...2/-

1.

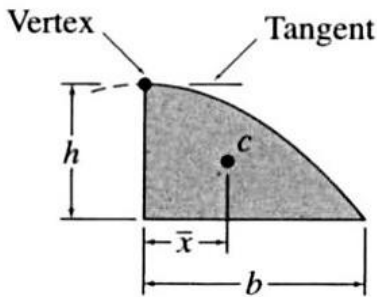
[marks/markah]

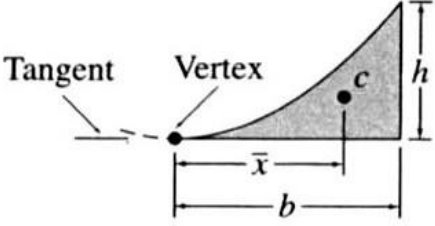
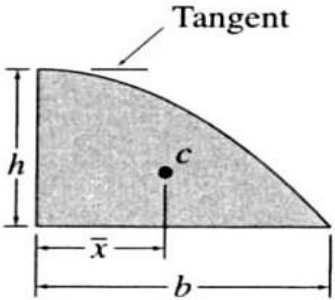
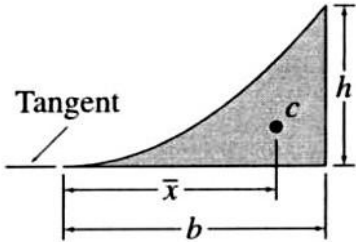
ooo000ooo

...12/-

Appendix
Lampiran

Areas and Centroids of Geometric Shapes

Shape	Area	Centroid
<p data-bbox="379 1594 584 1635">Semi-parabola</p>  <p>The diagram shows a shaded semi-parabola with its vertex at the top left corner. The height of the vertex is labeled h. The base width is labeled b. The centroid is marked with a dot and labeled c, with a horizontal distance \bar{x} from the base. A tangent line is drawn at the vertex, labeled "Tangent".</p>	$A = \frac{2bh}{3}$	$\bar{x} = \frac{3b}{8}$

<p>Parabolic spandrel</p> 	$A = \frac{bh}{3}$	$\bar{x} = \frac{3b}{4}$
<p>Cubic</p> 	$A = \frac{3bh}{4}$	$\bar{x} = \frac{2b}{5}$
<p>Cubic spandrel</p> 	$A = \frac{bh}{4}$	$\bar{x} = \frac{4b}{5}$