

END OF PAPER

PART IIA 2005

3B5 Semiconductor engineering

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Module 3B5 Semiconductor Engineering – 2005 Numerical Answers

- 2 (d) $E_F = 0.547 \text{ eV}$
(e) $E_F = 0.178 \text{ eV}$
(f) $V_{bi} = 0.675 \text{ V}$
- 3 (b) (i) $\phi_{\text{GaAs}} = 4.25 \text{ eV}, \phi_{\text{GaAlAs}} = 3.95 \text{ eV}$
(ii) $n = 1.24 \times 10^{23} \text{ m}^{-3}$
(iii) $t = 2.08 \text{ nm}$