

marking
Scheme }

Structural Dynamics [CVPB 11174 C]

2

PI18-114(BE-FF)

Q1 a) $\omega = 26.45 \text{ rad/sec}$ $C = 0.66 \text{ N-sec/m}$

$C_{cr} = 52.9 \text{ N-sec/m}$ $\xi = 1.247\%$

b) Definition of δ — 01 mark

$$\delta = \frac{1}{5} \ln \left(\frac{0.30}{0.15} \right) = 1.059 = 2\pi\xi$$

$$\xi = 16.8\%$$

OR

Q2a) Theory — 8 marks

b) Theory — 4 marks

Q3) Theory — 12 marks

OR

Q4) Mass matrix } 4 marks
Stiffness matrix }

Characteristic equation — 6 marks

Natural frequency & mode shapes — 2 marks

Q5) Theory — 13 marks.

OR

Q6) Theory — 13 marks

Q7) Theory — 13 marks

OR

Q8) Theory — 13 marks.