

Multiple Choice Answers

Q17: B

Q18: C

Multiple Choice Answers

Q17: C

Q18: A

Multiple Choice Answers

Q17: B

Q19: B

Multiple Choice Answers

Q17: D

Multiple Choice Answers

Q18: C

Multiple Choice Answers

Q18: D

Q19: C

3(a)	$E_{(K)} = \frac{1}{2}mv^2$
	$110 = \frac{1}{2} \times 5.5 \times v^2$
	$v = 6.3 \text{ m s}^{-1}$
3(b)	$(\Delta)E_{(P)} / 20 = mg(\Delta)h$ OR $(\Delta)E_{(P)} / 20 = mgx_0$
	$(x_0 =) 20 / 5.5 \times 9.81 = 0.37 \text{ (m)}$ Allow $(\Delta)h$ for x_0
3(c)	$[\max (E_{(P)})] = 110 + 20 = 130 \text{ J}$

3(d)	$(\max) E_{(P)} / 130 = \frac{1}{2} F_{(0)} x_{(0)}$
	$(F_0 =) 2 \times 130 / 0.37 = 700 \text{ (N)}$
	or $(\max) E_{(P)} / 130 = 1 / 2 k x_{(0)}^2$
	$(F_0 =) k x_{(0)}$
	$(F_0 =) 2 \times 130 \times 0.37 / (0.37)^2 = 700 \text{ (N)}$
3(e)(i)	(weight) = 5.5×9.81
	resultant force = $700 - (5.5 \times 9.81)$ = 650 N
3(e)(ii)	$F = ma$
	$a = 650 / 5.5$ or $(700 / 5.5) - 9.81$ $a = 120 \text{ m s}^{-2}$

Multiple Choice Answers

Q15: B