

# 112 學年度科技校院四年制與專科學校二年制

## 統一入學測驗公告參考答案

考科代碼：4-08-1

類 別：工程與管理類

考 科：專業科目(一)物理(B)

題號	答案	題號	答案	題號	答案	題號	答案	題號	答案	題號	答案
1	A	11	C	21	B	31	D	41	C	51	
2	C	12	C	22	D	32	A	42	C	52	
3	D	13	C	23	A	33	C	43	D	53	
4	D	14	D	24	C	34	D	44	B	54	
5	A	15	A	25	C	35	B	45	B	55	
6	D	16	C	26	A	36	B	46	B	56	
7	B	17	B	27	B	37	C	47	D	57	
8	A	18	A	28	D	38	B	48	A	58	
9	C	19	A	29	B	39	A	49	D	59	
10	D	20	B	30	C	40	B	50	A	60	

# 112 學年度技術校院四年制與專科學校二年制統一入學測驗 工程與管理類（專一）解析

## 試題分析

今年度的試題整體來說，比去年難及複雜。計算題的題數較多，且有些題目的敘述較長，學生可能無法清楚了解題意。學年物理平均應該會比去年多答錯 3 左右，分數約降低 6 分。

$$2. D = \frac{m}{V}, m = D \times V = 1000 \times (1.2 \times 0.6 \times 0.35) = 252 \text{kg}$$

$$5. H = \frac{1}{2}gt^2 = \frac{1}{2} \times 10 \times 1.6^2 = 12.8 \text{ 公尺}$$

$$7. D = 20\text{m}, R = 10\text{m}, a_c = g = 10\text{m/s}^2, a_c = \frac{V^2}{R}, 10 = \frac{V^2}{10}, V^2 = 100, V = 10\text{m/s}$$

13.  $M_{\text{地}} = 100M_{\text{月}}$ ,  $\textcircled{\text{地}} \quad \frac{R}{9} \quad \textcircled{\text{衛}} \quad \frac{8}{9}R \quad \textcircled{\text{月}}$

←—— R ——→

$$\frac{F_{\text{衛地}}}{F_{\text{衛月}}} = \frac{\frac{GM_{\text{地}}m}{\left(\frac{R}{9}\right)^2} \cdot \frac{100M_{\text{月}}}{R_2}}{\frac{GM_{\text{月}}m}{\left(\frac{8R}{9}\right)^2} \cdot \frac{M_{\text{月}}}{81}} = \frac{81}{81} = 6400$$

$$17. E = 100 \text{ 億度電} = 100 \times 10^8 \times 3.6 \times 10^6 \text{ 焦耳} = 3.6 \times 10^{16} \text{J}$$

$$E = mc^2, 3.6 \times 10^{16} = m \times (3 \times 10^8)^2, m = 0.4 \text{ 公斤} = 400 \text{ 公克}$$

$$19. m = 50\text{g} = 0.05\text{kg}, V_o = 0, V = 216\text{km/hr} = 60\text{m/s}$$

$$\Delta t = 0.005\text{sec}, \Sigma F = m \frac{\Delta V}{\Delta t} = 0.05 \times \frac{60}{0.005} = 600 \text{ 牛頓}$$

$$24. P = 600 \text{ 瓦特}, m = 200\text{g}, S_{\text{水}} = 1\text{cal/g}^\circ\text{C}$$

$$\Delta T = 70 - 20 = 50^\circ\text{C}, \Delta Q = mS\Delta T = 200 \times 1 \times 50 = 10000 \text{ 卡}$$

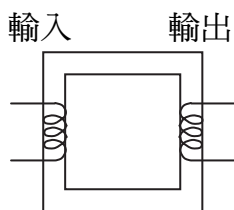
$$W = 10000 \times 4.2 = 42000 \text{ 焦耳}, W = P \cdot t, 42000 = 600 \times t, t = 70 \text{ 秒}$$

$$37. V = 110 \text{ 伏}, P = 1650 \text{ 瓦}, P = IV, 1650 = I \times 110, I = 15\text{A} \text{ (上限承載電流)}$$

$$\text{每個插座的上限電流為 } 3\text{A}, \text{插座數量不可超過 } \frac{15}{3} = 5 \text{ 個}$$

44. 若不計能量損失，可得輸出端最大電流

$$P_2 = P_1, I_2 \varepsilon_2 = I_1 \varepsilon_1, I_2 \times 100 = 10 \times 110, I_2 = 11\text{A}$$



$$\varepsilon_1 = 110\text{V}$$

$$\varepsilon_2 = 100$$

$$N_1 = 330$$

$$N_2 = 300$$

$$I_1 = 10\text{A}$$

$$I_2 = ?$$