1) B
2) B
3) B
4) C
5) A
6) C
7) C
8) B
9) A
10) B
11) A
12) C
13) D
14) C
15) B
16) D

(a)	**(i)**	mass / volume …(ratio must be clear).....	B1	
	(ii)	kg m^{-3} OR kg / m^3	B1	[2]
(b)		v has unit of m s^{-1}	B1	
		p / ρ has unit of kg m^{-1} s^{-2} / kg m^{-3} (no e.c.f. from (a))	M1	
		$\sqrt{(p / \rho)}$ has unit of m s^{-1}	A1	
		LHS = RHS so γ has no unit	A0	[3]

17)
18)

kg m^{-3}	B1	
frequency or count rate or activity or decay constant	B1	
NC^{-1} or V m^{-1} or kg m s^{-2} C^{-1} etc.	B1	
momentum or impulse.....	B1	[4]
(Allow solidus notation and non SI units)		

19)

(a)	**(i)**	force per unit area (ratio idea essential)	B1	
	(ii)	kg m^{-1} s^{-2}	B1	**[2]**
(b)		ρ has base unit kg m^{-3}	B1	
		g has base unit m s^{-2}	B1	
		$h\rho g$ has base unit m × kg m^{-3} × m s^{-2}	M1	
		same as pressure QED	A0	**[3]**

20)

(a)	kg m s^{-2}	B1	**[1]**
(b)	kg m^{-1} s^{-1}	B1	**[1]**

21)

(a) (i) $Q = It$ *(allow any subject for the equation)* B1 [1]

(ii) I B1
t B1 [2]
(allow 1 mark only if all three quoted)

(b) (i) base unit of I is A
base unit of n is m^{-3} *(not $/m^{-3}$)*
base unit of S is m^2
base unit of q is A s *(not C)*
base unit of v is $m\,s^{-1}$
(–1 for each error or omission) B3 [3]

(ii) $A = m^{-3}\ m^2\ A\ s\ (m\ s^{-1})^k$ M1
e.g. for m: $0 = -3 + 2 + k$
$k = 1$ A1 [2]

22)

(a) e.g. time (s), current (A), temperature (K), amount of substance (mol), luminous intensity (cdl)
1 each, max 3 ..... B3 [3]

(b) density = mass / volume C1
unit of density: $kg\ m^{-3}$ C1
unit of acceleration: $m\ s^{-2}$ C1
unit of pressure: $kg\ m^{-3}\ m\ s^{-2}\ m$ B1
$kg\ m^{-1}\ s^{-2}$ ..... B1 [5]
(allow 4/5 for solution in terms of only dimensions)