LIST OF SELECTED CONSTANT VALUES
SENARAI NILAI PEMALAR TERPILIH

Speed of light in vacuum *Laju cahaya dalam vakum*	c	$= 3.00 \times 10^{8}$ m s^{-1}
Permeability of free space *Ketelapan ruang bebas*	μ_o	$= 4\pi \times 10^{-7}$ H m^{-1}
Permittivity of free space *Ketelusan ruang bebas*	ε_o	$= 8.85 \times 10^{-12}$ F m^{-1}
Electron charge magnitude *Magnitud cas elektron*	e	$= 1.60 \times 10^{-19}$ C
Planck constant *Pemalar Planck*	h	$= 6.63 \times 10^{-34}$ J s
Electron mass *Jisim elektron*	m_e	$= 9.11 \times 10^{-31}$ kg $= 5.49 \times 10^{-4}$ u
Neutron mass *Jisim neutron*	m_n	$= 1.674 \times 10^{-27}$ kg $= 1.008665$ u
Proton mass *Jisim proton*	m_p	$= 1.672 \times 10^{-27}$ kg $= 1.007277$ u
Hydrogen mass *Jisim hidrogen*	m_H	$= 1.673 \times 10^{-27}$ kg $= 1.007825$ u
Deuteron mass *Jisim deuteron*	m_d	$= 3.34 \times 10^{-27}$ kg $= 2.014102$ u
Molar gas constant *Pemalar gas molar*	R	$= 8.31$ J K^{-1} mol^{-1}
Rydberg constant *Pemalar Rydberg*	R_H	$= 1.097 \times 10^{7}$ m^{-1}
Avogadro constant *Pemalar Avogadro*	N_A	$= 6.02 \times 10^{23}$ mol^{-1}
Boltzmann constant *Pemalar Boltzmann*	k	$= 1.38 \times 10^{-23}$ J K^{-1}
Gravitational constant *Pemalar graviti*	G	$= 6.67 \times 10^{-11}$ N m^2 kg^{-2}

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SENARAI NILAI PEMALAR TERPILIH

Free-fall acceleration *Pecutan jatuh bebas*	g	$= 9.81 \text{ m s}^{-2}$
Atomic mass unit *Unit jisim atom*	1 u	$= 1.66 \times 10^{-27} \text{ kg}$ $= 931.5 \frac{\text{MeV}}{c^2}$
Electron volt *Elektron volt*	1 eV	$= 1.6 \times 10^{-19} \text{ J}$
Constant of proportionality for Coulomb's law *Pemalar hukum Coulomb*	$k = \frac{1}{4\pi\varepsilon_0}$	$= 9.0 \times 10^{9} \text{ N m}^2 \text{ C}^{-2}$
Atmospheric pressure *Tekanan atmosfera*	1 atm	$= 1.013 \times 10^{5} \text{ Pa}$
Density of water *Ketumpatan air*	ρ_w	$= 1000 \text{ kg m}^{-3}$

LIST OF SELECTED FORMULAE
SENARAI RUMUS TERPILIH

1. $F = \frac{Qq}{4\pi\varepsilon_o r^2} = k\frac{Qq}{r^2}$
2. $E = \frac{F}{q_o}$
3. $E = \frac{kQ}{r^2}$
4. $V = \frac{W}{q_o}$
5. $V = \frac{kQ}{r}$
6. $\Delta U = q\Delta V$
7. $U = k\left(\frac{q_1 q_2}{r_{12}}\right)$
8. $U = k\left(\frac{q_1 q_2}{r_{12}} + \frac{q_1 q_3}{r_{13}} + \frac{q_2 q_3}{r_{23}}\right)$
9. $E = \frac{\Delta V}{d}$
10. $C = \frac{Q}{V}$
11. $\frac{1}{C} = \frac{1}{C_1} + \frac{1}{C_2} + \frac{1}{C_3} + ... + \frac{1}{C_n}$
12. $C = C_1 + C_2 + C_3 + ... + C_n$
13. $U = \frac{1}{2}CV^2 = \frac{1}{2}QV = \frac{1}{2}\frac{Q^2}{C}$
14. $\tau = RC$
15. $Q = Q_o e^{\frac{-t}{RC}}$
16. $Q = Q_o\left(1 - e^{\frac{-t}{RC}}\right)$
17. $\varepsilon_r = \frac{\varepsilon}{\varepsilon_o}$
18. $C_o = \frac{\varepsilon_o A}{d}$
19. $C = \varepsilon_r C_o$
20. $I = \frac{dQ}{dt}$
21. $Q = ne$
22. $V = IR$
23. $\rho = \frac{RA}{l}$
24. $R = R_o\left[1 + \alpha(T - T_o)\right]$
25. $V = \varepsilon - Ir$
26. $R = R_1 + R_2 + R_3 + ... + R_n$
27. $\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} + ... + \frac{1}{R_n}$
28. $P = VI = I^2R = \frac{V^2}{R}$
29. $E = VIt$
30. $V_1 = \left(\frac{R_1}{R_1 + R_2 + ...R_n}\right)V$

LIST OF SELECTED FORMULAE
SENARAI RUMUS TERPILIH

31. $\frac{\varepsilon_1}{\varepsilon_2} = \frac{l_1}{l_2}$

32. $B = \frac{\mu_o I}{2\pi r}$

33. $B = \frac{\mu_o I}{2r}$

34. $B = \mu_o nI$

35. $B = \frac{1}{2}\mu_o nI$

36. $F = qvB\sin\theta$

37. $F = IlB\sin\theta$

38. $\frac{F}{l} = \frac{\mu_o I_1 I_2}{2\pi d}$

39. $\tau = NIAB\sin\theta$

40. $v = \frac{E}{B}$

41. $\phi = BA\cos\theta$

42. $\Phi = N\phi$

43. $\varepsilon = -\frac{d\phi}{dt}$

44. $\varepsilon = Blv\sin\theta$

45. $\varepsilon = -NA\frac{dB}{dt}$

46. $\varepsilon = -NB\frac{dA}{dt}$

47. $\varepsilon = NAB\omega\sin\omega t$

48. $\varepsilon = -L\left(\frac{dI}{dt}\right)$

49. $L = \frac{N\phi}{I}$

50. $L_{coil} = \frac{\mu_o N^2 A}{2r}$

51. $L_{solenoid} = \frac{\mu_o N^2 A}{l}$

52. $U = \frac{1}{2}LI^2$

53. $M = \frac{\mu_o N_1 N_2 A}{l}$

54. $V = V_o\sin\omega t$

55. $I = I_o\sin\omega t$

56. $I_{rms} = \frac{I_o}{\sqrt{2}}$

57. $V_{rms} = \frac{V_o}{\sqrt{2}}$

58. $X_C = \frac{1}{2\pi fC}$

59. $X_L = 2\pi fL$

60. $Z = \sqrt{R^2 + (X_L - X_C)^2}$

61. $\phi = \tan^{-1}\frac{(X_L - X_C)}{R}$

LIST OF SELECTED FORMULAE
SENARAI RUMUS TERPILIH

62. $\cos\phi = \frac{R}{Z}$

63. $P_{av} = I_{rms} V_{rms} \cos\phi$

64. $P_{inst} = IV$

65. $\cos\phi = \frac{P_r}{P_a} = \frac{P_{av}}{I_{rms} V_{rms}}$

66. $R = 2f$

67. $\frac{1}{f} = \frac{1}{u} + \frac{1}{v}$

68. $m = \frac{h_i}{h_o} = -\frac{v}{u}$

69. $\frac{n_1}{u} + \frac{n_2}{v} = \frac{n_2 - n_1}{R}$

70. $\frac{1}{f} = \left(\frac{n_{material}}{n_{medium}} - 1\right)\left(\frac{1}{R_1} - \frac{1}{R_2}\right)$

71. $y_m = \frac{m\lambda D}{d}$

72. $y_m = \frac{\left(m + \frac{1}{2}\right)\lambda D}{d}$

73. $\Delta y = \frac{\lambda D}{d}$

74. $2nt = m\lambda$

75. $2nt = \left(m + \frac{1}{2}\right)\lambda$

76. $y_n = \frac{n\lambda D}{a}$

77. $y_n = \frac{\left(n + \frac{1}{2}\right)\lambda D}{a}$

78. $d \sin\theta = n\lambda$

79. $d = \frac{1}{N}$

80. $E = hf = \frac{hc}{\lambda}$

81. $\frac{1}{2} m v_{max}^2 = eV_s = hf - hf_o$

82. $W_o = hf_o$

83. $K_{max} = eV_s = hf - W_o$

84. $\lambda = \frac{h}{p}$

85. $\lambda = \frac{h}{\sqrt{2meV}}$

86. $A = Z + N$

87. $\Delta m = \left(Zm_p + Nm_n\right) - m_{nucleus}$

88. $E_B = \Delta m c^2$

89. $\frac{dN}{dt} = -\lambda N$

90. $N = N_o e^{-\lambda t}$

91. $A = A_o e^{-\lambda t}$

92. $T_{\frac{1}{2}} = \frac{\ln 2}{\lambda}$