

Model Questions for B.Tech and Undergraduate Programs in Health Sciences

Part 1 - Physics

- The constant $\mu_0\epsilon_0$ has the same dimension as
 - reciprocal of velocity
 - square of velocity
 - velocity
 - reciprocal of square of velocity
- If mass of electron is 9.11×10^{-31} kg, the number of electrons in 10g will be
 - 6×10^{28}
 - 4.5×10^{24}
 - 1.1×10^{28}
 - 1.09×10^{27}
- The number of significant figures in 0.00450 are
 - 5
 - 4
 - 3
 - 7
- A particle is moving with a velocity $v = K(yi+xj)$, where K is a constant. The general equation for the path described by the particle is
 - $y=x^2+\text{constant}$
 - $y^2=x+\text{constant}$
 - $x=y=\text{constant}$
 - $y^2=x^2+\text{constant}$
- A Wheel has moment of inertia 1 kg m^2 about its vertical axis. It rotates at a rate of 60 rpm about this axis. The torque which can stop the wheel's rotation in a minute is
 - $\pi/12$
 - $\pi/15$
 - $\pi/18$
 - $\pi/30$
- A particle has an initial velocity of $3i+4j$ and an acceleration of $0.4i+0.3j$. Its speed after 10s is
 - 7 units
 - 8.5 units
 - 10 units
 - $7\sqrt{2}$ units
- Motion of planets in the solar system is an example of the conservation of
 - mass
 - linear momentum
 - angular momentum
 - energy
- The velocity with which a projectile must be launched so that it escapes earth's gravitational field, does not depend on
 - mass of the earth
 - mass of the projectile
 - radius of the projectile's orbit
 - gravitational constant
- An object is immersed in a fluid. For the object to become invisible it should
 - behave as a perfect reflector
 - absorb all light falling on it
 - have refractive index 1

- d) have refractive index exactly matching with the surrounding fluid
10. A particle is vibrating in simple harmonic motion with an amplitude 0.04 m. At what displacement from the equilibrium position is its energy half potential and half kinetic?
a) 1 cm b) 2 cm c) 2.2 cm d) 2 cm.
11. A lady wearing high heel shoes balances on a single heel. The heel is circular with a diameter 0.8 cm. The pressure exerted by the heel on the horizontal floor is 7.8×10^6 N/m². The mass of the lady is
a) 40kg b) 50kg c) 60kg d) 10kg
12. Dettol can reach fine cavities formed in wounds to clean because
a) Surface tension of Dettol is greater than that of water
b) Surface tension of Dettol is equal to that of water
c) Dettol is highly viscous
d) Dettol is less viscous
13. Temperature of human body is 98.4° F. The corresponding temperatures on the Celsius scale and Kelvin scale are
a) 0°C and 273K b) 273 K and 17°C
c) 36.9°C and 309.9 K d) 17.2°C and 120.2 K.
14. If the sun becomes twice as hot,
a) the output radiant energy will be sixteen times larger
b) it will radiate predominantly ultraviolet
c) it will radiate monochromatic radiation
d) it becomes dark.
15. When water is heated convection currents occur because
a) warm water is heavier than coldwater
b) heat pushes the water up
c) warm water is less dense than coldwater
d) cold water is less dense than warm water

16. Velocity of light in a transparent medium is $\frac{2}{3}$ of that in air. The refractive index of the medium is
- a) 0.67 b) 1.1 c) 1.5 d) 0.12.
17. The source of energy for the sun to radiate is
- a) fission b) thermo-electric power
c) fusion d) photoelectric effect.
18. At a distance 4 metre from a lamp the intensity of illumination is 6 lux. The illuminating power of lamp is
- a) 22 candela b) 9 candela c) 28 candela d) 96 candela.
19. If a star moves away from the earth, the spectral line of the star
- a) shifts toward the red end of the spectrum
b) shifts toward the violet end of the Spectrum
c) does not shift
d) disappears
20. In the case of a parallel plate capacitor, when the distance between the two plates is reduced to one third and the area of the plate doubled, the capacitance
- a) remains the same b) is doubled
c) increases to five times d) increases to six times
21. If two identical point charges separated by 3 m experience a force of 10 newton, then the individual charge is
- a) $100\mu\text{C}$ b) $10\mu\text{C}$ c) $1\mu\text{C}$ d) $0.1\mu\text{C}$
22. A magnetic material has a magnetization of 3200 A/m and flux density of $14\pi \times 10^{-4}$ weber/m². The magnetizing force is
- a) 10 A/m b) 200 A/m c) 3000 A/m d) 300 A/m.
23. The vertical component of earth's magnetic field is zero at
- a) magnetic equator b) magnetic poles
c) geographic poles d) at 90° latitude.

32. An increase of temperature of a semiconductor decreases
- a) the resistivity
 - b) the band gap
 - c) the conductivity
 - d) size of the semiconductor.
33. In an n -type semiconductor, the position of the Fermi level
- a) is lower than the centre of the energy gap
 - b) is at the centre of the energy gap
 - c) is higher than that of the energy gap
 - d) can be anywhere depending on the doping concentrates.
34. At 0 K, germanium is a
- a) conductor
 - b) insulator
 - c) superconductor
 - d) semiconductor.
35. A p -type silicon crystal is electrically
- a) positive
 - b) negative
 - c) neutral
 - d) either positive or negative.

Part 2 - Chemistry

36. The real gas behave like an ideal gas when
a) temperature and pressure are low
b) temperature is low or pressure is high
c) temperature is high or pressure is low
d) temperature and pressure are high
37. The compound in which P remains in the +3 oxidation state is
a) P_2O_5 b) P_4O_{10} c) P_4O_6 d) H_3PO_4
38. What is the co-ordination number for Cr in $K_3[Cr(C_2O_4)].3H_2O$?
a) 3 b) 4 c) 6 d) 5
39. The secondary valency of Co in $[Co(en)_2Cl_2]^+$ is
a) 6 b) 4 c) 2 d) 8
40. Which of the following ligands forms a Chelate ?
a) Acetate b) Oxalate c) Cyanide d) Ammonia
41. Identify the least stable among the following
a) Li^- b) Be^- c) B^- d) C^-
42. Paschen series are produced when electrons from the outer orbits jump to
a) 2nd orbit b) 3rd orbit c) 4th orbit d) 5th orbit
43. The series of line present in the visible region of the hydrogen spectrum is
a) Lyman b) Balmer c) Paschen d) Brackett
44. The bond order of N_2 molecule is
a) 1 b) 2 c) 3 d) 2.5
45. The basicity of Phosphorous acid , Orthophosphoric acid and Metaphosphoric acid are respectively
a) 3,2and1 b) 2,3 and 1 c) 2,1 and 3 d) 1,2 and 3

46. Change in enthalpy for the reaction $2\text{H}_2\text{O}_2(\text{l}) \rightarrow 2\text{H}_2\text{O}(\text{l}) + \text{O}_2(\text{g})$, if heat of formation of $\text{H}_2\text{O}_2(\text{l})$ and $\text{H}_2\text{O}(\text{l})$ are -188 kJ/mol , and -286 kJ/mol respectively is
 a) -196 kJ/mol b) 196 kJ/mol c) 948 kJ/mol d) -948 kJ/mol
47. Water is a
 a) Protophobic solvent b) protophilic solvent
 c) amphiprotic solvent d) aprotic solvent
48. Which of the following has the lowest pH value
 a) 1 M HCl b) 1 M NaOH c) $1 \text{ M H}_2\text{SO}_4$ d) $1 \text{ M C}_2\text{H}_5\text{OH}$
49. Which among the following rate constant indicates first order reaction?
 a) $2 \times 10^{-5} \text{ sec}^{-1}$ b) $2 \times 10^{-5} \text{ mol lit}^{-1} \text{ sec}^{-1}$
 c) $2 \times 10^{-5} \text{ mol}^{-2} \text{ lit}^2 \text{ sec}^{-1}$ d) $2 \times 10^{-5} \text{ mol}^{-1} \text{ lit sec}^{-1}$
50. The tyndall effect associated with colloidal particles is due to
 a) Presence of electrical charge b) scattering of light
 c) absorption of light d) reflection of light
51. Which one of the following is lyophilic colloid?
 a) Milk b) gum c) fog d) blood
52. Which of the following aqueous solutions will conduct current quite well?
 a) Glycerol b) HCl c) Sugar d) pure water
53. The emf of the cell reaction is positive when the free energy of the cell reaction is
 a) +ve b) -ve
 c) zero d) cannot be predicted
54. Which of the following reactions occurs at the anode when the electrolysis of CuCl_2 is carried out using Pt electrode?
 a) $\text{Cu} \rightarrow \text{Cu}^{2+} + 2\text{e}^-$ b) $2\text{Cl}^- \rightarrow \text{Cl}_2 + 2\text{e}^-$ c) $2\text{H}_2\text{O} \rightarrow \text{O}_2 + 4\text{H}^+$ d) $2\text{Cu} \rightarrow \text{Cu}^+ + \text{e}^-$
55. The amount of electricity required to deposit one mole of aluminium from a solution of AlCl_3 will be
 a) 0.33 Faraday b) 1 Faraday c) 3 Faraday d) 1.33 Faraday

56. The element with highest electrical conductivity is
 a) Gold b) silver c) copper d) mercury
57. The conductivity of N/10 KCl solution at 20°C is 0.0212 ohm⁻¹ Cm⁻¹ and the resistance of the cell containing this solution at 20°C is 55 ohm. The cell constant is
 a) 4.616 cm⁻¹ b) 1.66 cm⁻¹ c) 2.173 cm⁻¹ d) 3.324 cm⁻¹
58. Which is the missing particle in the following nuclear reaction, ${}_3^7\text{Li} + {}_1^2\text{H} \rightarrow {}_3^8\text{Li} + ?$
 a) Proton b) deuteron c) positron d) α -particle
59. Which of the following has highest n/p ratio?
 a) ${}^{16}\text{Ne}$ b) ${}^{16}\text{O}$ c) ${}^{16}\text{F}$ d) ${}^{16}\text{N}$
60. Which of the following is used as neutron absorber in the nuclear reactor?
 a) Water b) deuterium c) tritium d) cadmium
61. Which of the following alkenes gives only acetic acid on oxidation with hot conc. KMnO_4 ?
 a) Ethylene b) 1-Butene c) Propene d) 2-Butene
62. The number of structural isomers of alcohols with molecular formula $\text{C}_4\text{H}_9\text{OH}$ is
 a) 5 b) 4 c) 3 d) 6
63. Lucas test is used to determine the type of
 a) Alcohols b) amines c) acids d) carbohydrates
64. Check the incorrect statement
 a) Tartaric acid is present in grapes b) citric acid is a tricarboxylic acid
 c) formic acid is present in insect bites d) acetic acid is present in sour milk
65. Which of the following statements is false about glucose?
 a) It is a reducing sugar b) it has a pyranose form
 c) it is a disaccharide d) it is a polyalcohol

66. With which of the following diseases is vitamin K associated?
- a) Rickets
 - b) Coagulating property of blood
 - c) Scurvy
 - d) Sore throat
67. Which of the following is insecticide?
- a) DDT
 - b) TNT
 - c) TNB
 - d) aspirin
68. Caprolactum is the starting material for
- a) Nylon-6
 - b) terylene
 - c) nylon-6,10
 - d) nylon-6,6
69. $F_2C=CF_2$ is a monomer of
- a) Teflon
 - b) glyptal
 - c) nylon-6
 - d) buna-S
70. PVC is stronger than PE due to one of the following reasons
- a) Presence of lumps of Cl atoms in the side chain
 - b) Belongs to thermosetting plastic
 - c) Belongs to thermoplastic
 - d) Presence of cross linked structures

78. The value of $\cot \left(\operatorname{cosec}^{-1} \frac{5}{3} + \tan^{-1} \frac{2}{3} \right)$ is
 a) $\frac{4}{17}$ b) $\frac{5}{17}$ c) $\frac{6}{17}$ d) $\frac{3}{17}$
79. The differential equation of the family of circles with fixed radius 5 units and centre on the line $y=2$ is
 a) $(y-2)^2 y'^2 = 25 - (y-2)^2$ b) $(x-2)^2 y'^2 = 25 - (y-2)^2$
 c) $(x-2)y'^2 = 25 - (y-2)^2$ d) $(y-2)y'^2 = 25 - (y-2)^2$
80. The quadratic equations $x^2 - 6x + a = 0$ and $x^2 - cx + 6 = 0$ have one root in common. The other roots of the first and second equations are integers in ratio 4:3. Then the common root is
 a) 3 b) 2 c) 1 d) 4
81. The mean of the numbers $a, b, 8, 5, 10$ is 6 and the variance is 6.80. Then which one of the following gives possible values of a and b ?
 a) $a=1, b=6$ b) $a=3, b=4$ c) $a=0, b=7$ d) $a=5, b=2$
82. Let $R = \{(3,3), (6,6), (9,9), (12,12), (6,12), (3,9), (3,12), (3,6)\}$ be a relation on the set $A = \{3, 6, 9, 12\}$. The relation is
 a) reflexive and transitive only b) reflexive only
 c) an equivalence relation d) reflexive and symmetric only
83. The solution of the differential equation $\frac{dy}{dx} = \frac{x+y}{x}$ satisfying the condition $y(1) = 1$ is
 a) $y = xe^{(x-1)}$ b) $y = x \ln x + x$ c) $y = \ln x + x$ d) $y = x \ln x + x^2$
84. If a line makes an angle $\frac{\pi}{4}$ with the positive directions of each of x -axis and y -axis, then the angle that the line makes with the positive direction of z axis is
 a) $\frac{\pi}{6}$ b) $\frac{\pi}{3}$ c) $\frac{\pi}{4}$ d) $\frac{\pi}{2}$
85. The point diametrically opposite to the point $P(1,0)$ on the circle $x^2 + y^2 + 2x + 4y - 3 = 0$ is
 a) $(-3,-4)$ b) $(3,4)$ c) $(3,-4)$ d) $(-3,4)$

86. If $a^2 + b^2 + c^2 = -2$ and $f(x) = \begin{vmatrix} 1 + a^2x & (1 + b^2)x & (1 + c^2)x \\ (1 + a^2)x & 1 + b^2x & (1 + c^2)x \\ (1 + a^2)x & (1 + b^2)x & 1 + c^2x \end{vmatrix}$ then $f(x)$ is a polynomial of degree
- a) 1 b) 0 c) 3 d) 2
87. The value of $50 C_4 + \sum_{r=1}^6 56 - r C_3$ is
- a) $55 C_4$ b) $55 C_3$ c) $56 C_3$ d) $56 C_4$
88. Suppose the cubic $x^3 - px + q$ has three distinct real roots where $p > 0$ and $q > 0$, then which one of the following holds
- a) the cubic has minima at both $\sqrt{p/3}$ and $-\sqrt{p/3}$
b) the cubic has maxima at both $\sqrt{p/3}$ and $-\sqrt{p/3}$
c) the cubic has minima at $\sqrt{p/3}$ and maxima at $-\sqrt{p/3}$
d) the cubic has minima at $-\sqrt{p/3}$ and maxima at $\sqrt{p/3}$
89. The first two terms of a geometric progression add up to 12. The sum of the third and fourth term is 48. If the terms of the geometric progression are alternatively positive and negative then the first term is
- a) 12 b) 4 c) -4 d) -12
90. If the straight lines $\frac{x-1}{k} = \frac{y-2}{2} = \frac{z-3}{3}$ and $\frac{x-2}{3} = \frac{y-3}{k} = \frac{z-1}{2}$ intersect at a point then the integer k is equal to
- a) 2 b) -2 c) -5 d) 5
91. The equation of the tangent to the curve $y = x + \frac{4}{x^2}$, that is parallel to x axis, is
- a) $y=1$ b) $y=2$ c) $y=3$ d) $y=0$
92. If the vectors $\bar{a} = \bar{i} - \bar{j} + 2\bar{k}$, $\bar{b} = 2\bar{i} + 4\bar{j} + 2\bar{k}$ and $\bar{c} = \lambda\bar{i} + \bar{j} + \mu\bar{k}$ are mutually orthogonal, then $(\lambda, \mu) =$
- a) (2,-3) b) (-2,3) c) (3,-2) d) (-3,2)
93. If $x^m y^n = (x + y)^{m+n}$, then $\frac{dy}{dx}$ is
- a) $\frac{x+y}{xy}$ b) xy c) $\frac{x}{y}$ d) $\frac{y}{x}$

94. If $\cos(\alpha + \beta) = \frac{4}{5}$ and $\sin(\alpha - \beta) = \frac{5}{13}$, where $0 \leq \alpha, \beta \leq \frac{\pi}{4}$, then $\tan 2\alpha =$
 a) $\frac{56}{33}$ b) $\frac{19}{12}$ c) $\frac{20}{7}$ d) $\frac{25}{16}$
95. $\lim_{n \rightarrow \infty} \left[\frac{1}{2} \sec^2 \frac{1}{n^2} + \frac{2}{n^2} \sec^2 \frac{4}{n^2} + \dots \dots \dots \frac{1}{n} \sec^2 1 \right]$ equals
 a) $\frac{1}{2} \sec 1$ b) $\frac{1}{2} \operatorname{cosec} 1$ c) $\tan 1$ d) $\frac{1}{2} \tan 1$
96. If, in a frequency distribution, the mean and the median are 21 and 22 respectively, then its mode is approximately
 a) 22.0 b) 20.5 c) 25.5 d) 24.0
97. Let $A = \begin{bmatrix} 5 & 5\alpha & \alpha \\ 0 & \alpha & 5\alpha \\ 0 & 0 & 5 \end{bmatrix}$. If $|A^2| = 25$, then $|\alpha|$ equals
 a) 5^2 b) 1 c) $1/5$ d) 5
98. A pair of dice is thrown independently three times. The probability of getting a score of exactly 9 thrice is
 a) $\frac{1}{729}$ b) $\frac{8}{9}$ c) $\frac{8}{729}$ d) $\frac{8}{243}$
99. For the Hyperbola $\frac{x^2}{\cos^2 \alpha} - \frac{y^2}{\sin^2 \alpha} = 1$, which of the following remains constant when α varies?
 a) Eccentricity b) Directrix
 c) Abscissa of vertices d) Abscissa of foci
100. The sum of the series $\frac{1}{2!} - \frac{1}{3!} + \frac{1}{4!} \dots \dots \dots$ upto infinity is
 a) e^{-2} b) e^{-1} c) $e^{\frac{-1}{2}}$ d) $e^{\frac{1}{2}}$
101. A value of c for which the conclusion of Mean Value Theorem holds for the function $f(x) = \log_e x$ on the interval $[1,3]$ is
 a) $2 \log_3 e$ b) $\frac{1}{2} \log_e 3$ c) $\log_3 e$ d) $\log_e 3$

Part 4 - Biology

71. Name the organ that stores surplus red blood cells
a) Pancreas b) Spleen c) Liver d) Kidneys
72. Which is not a bacterial disease affecting animals?
a) Anthrax b) Leptospirosis c) Histoplasmosis d) Tuberculosis
73. Karyotyping
a) Identification of different cell lines b) Chromosome duplication
c) Arrangement of chromosomes d) DNA fragmentation
74. The smallest particle of a substance that is capable of independent existence is
a) Atom b) Electron c) Molecule d) Proton
75. Which of the following statements concerning platelets is INCORRECT. Platelets
a) contain DNA
b) have little ability to synthesize proteins
c) are roughly disk-shaped
d) are between 1/2 and 1/3 the diameter of the red cell
76. Which of the following is NOT part of a neuron?
a) Synapse b) Axon c) Nissl bodies d) Dendrite
77. Tissue differentiation begins at which stage?
a) Zygote b) Blastula c) Morula d) Gastrula
78. Among these which one is Organophosphorus Pesticides?
a) Dichloromethane b) Malathion c) Chloroform d) Carbamide
79. How many nucleotides make up a codon?
a) 3 b) 4 c) 6 d) 1
80. The purity of an enzyme at various stages of purification is best measured by
a) Total protein b) Total enzyme activity
c) Specific activity of the enzyme d) Percent recovery of protein

99. Prothrombin synthesis in liver requires
 a) Zinc b) Potassium c) Calcium d) Vit K
100. Find the correctly matched pathogenic protozoans with its diseases
 a) *Leishmania tropica* – skin leishmaniasis
 b) *Giardia intestinalis* – amoebiasis
 c) *Leishmania donavani* - African sleeping sickness
 d) *Trypanosoma gambiense* – kala azar
101. Posterior pituitary hormones are:
 a) Vasopressin and CRH b) Oxytocin and ACTH
 c) TRH and FSH d) ADH and Oxytocin
102. Which of these is an essential amino acid?
 a) Alanine b) Arginine
 c) Serine d) Lysine
103. Which of the following is non homopolysaccharides
 a) Cellulose b) Starch
 c) Glycogen d) Heparin
104. Ammonium ion is released by
 a) Arginase b) Glutaminase
 c) Glutamate dehydrogenase d) Glutamate hydrolase
105. Inability to understand, speak or read is
 a) Dyslexia b) Ataxia
 c) Disconnection syndrome d) Aphasia
106. Which of the following has the highest pH?
 a) Gastric juice b) Saliva
 c) Bile in the gallbladder d) Pancreatic juice
107. Recommended vaccines for rabies
 a) BCG b) HDCV c) MMR d) DPT

108. All these conditions are sex chromosome disorders except:
- a) Super female
 - b) Down's syndrome
 - c) Turner syndrome
 - d) Kline filter syndrome
109. Nodules with nitrogen-fixing bacteria are present in
- a) Gram
 - b) Mustard
 - c) Wheat
 - d) Cotton
110. Stable conformation means
- a) Maximum energy
 - b) Binding energy
 - c) Minimum energy
 - d) Interaction energy
111. Holliday junctions are otherwise called as
- a) Tight Junction
 - b) Gap Junctions
 - c) Recons
 - d) Introns
112. The correct structure of a nucleotide is:
- a) Phosphate-ribose-adenine
 - b) Phospholipid-sugar-base
 - c) Phosphate-sugar-phosphate-sugar
 - d) Adenine-thymine or guanine-cytosine
113. The gas that is most responsible for the greenhouse effect on Earth is
- a) Oxygen
 - b) Carbon dioxide
 - c) Nitrogen
 - d) Ozone
114. Which material accounts for the greatest percentage of the weight of solid waste?
- a) Food waste
 - b) Paper
 - c) Plastic
 - d) Yard waste
115. Which is incorrect?
- a) Stem cells are self-renewable
 - b) Stem cells can proliferate
 - c) Stem cells can differentiate
 - d) Stem cells has indefinite lifespan

116. Adenovirus
- a) is a double stranded DNA virus
 - b) is implicated in acute retinal necrosis
 - c) causes conjunctivitis which responds well to oral acyclovir
 - d) RNA containing virus
117. The attachment of the embryo to the uterus is called
- a) Gestation
 - b) Implantation
 - c) Fertilisation
 - d) Menstruation
118. Which of the following is a non renewable resource?
- a) Solar Energy
 - b) Flora and fauna
 - c) Hydrocarbon fuel
 - d) Nuclear power
119. Birds differ from bats in absence of
- a) Homeothermy
 - b) Tracheae
 - c) Four-chambered heart
 - d) Diaphragm
120. Which is the most important source of food and fodder?
- a) Algae
 - b) Lichen
 - c) Fungi
 - d) Cereal

Answer Key											
Physics		Chemistry		Math		Biology					
1	c	36	c	71	c	71	b	106	d		
2	c	37	c	72	d	72	c	107	b		
3	a	38	c	73	b	73	c	108	b		
4	d	39	a	74	c	74	c	109	a		
5	b	40	b	75	d	75	a	110	c		
6	d	41	b	76	b	76	a	111	c		
7	c	42	b	77	d	77	d	112	a		
8	b	43	b	78	c	78	d	113	b		
9	d	44	c	79	a	79	a	114	b		
10	c	45	b	80	b	80	c	115	d		
11	a	46	a	81	b	81	b	116	a		
12	d	47	c	82	a	82	b	117	b		
13	c	48	c	83	b	83	d	118	c		
14	a	49	a	84	d	84	b	119	d		
15	c	50	b	85	a	85	c	120	d		
16	c	51	b	86	d	86	c				
17	c	52	b	87	d	87	c				
18	d	53	b	88	c	88	c				
19	a	54	b	89	d	89	a				
20	d	55	c	90	c	90	d				
21	a	56	b	91	c	91	b				
22	d	57	b	92	d	92	c				
23	a	58	a	93	d	93	d				
24	d	59	d	94	a	94	c				
25	b	60	d	95	d	95	b				
26	b	61	d	96	d	96	d				
27	d	62	b	97	c	97	d				
28	b	63	a	98	d	98	a				
29	c	64	d	99	d	99	d				
30	d	65	c	100	b	100	a				
31	b	66	b	101	a	101	a				
32	a	67	a	102	d	102	d				
33	c	68	a	103	c	103	d				
34	c	69	a	104	d	104	c				
35	c	70	a	105	d	105	b				