Sample Question Paper for the Entrance examination for
MSc in "Biotechnology & Bioinformatics" (2018-20) in IBAB,
Bengaluru (degree awarded by Bangalore University)

Please note: While a small number of questions are shown as examples here, the actual number in the **final test** will have about 115 questions to be answered in 100 minutes.

The division of questions across domains, in the final exam, will be as follows:

BIOLOGY	- 30
ENGLISH	- 10
MATHS & GENERAL APTITUDE	- 35
PHYSICS	- 15
CHEMISTRY	- 20

No need to worry if you don't know the answers to all questions. Since the questions come from diverse subjects, it is expected most students may not answer all questions.

But, to avoid confusions in the last minute, and to be comfortable with the unique online test system, **please take the trial test without fail**! The dates for the trial tests will be sent to you shortly. You will receive more instructions from admissions@ibab.ac.in. If you have questions about the online entrance test, please email to admissions@ibab.ac.in

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BIOLOGY

Q1. The diploid body cell of a human female contains_____
   a) 2 X chromosomes
   b) 3 X and 1 Y chromosomes
   c) 2 X and 1 Y chromosomes
   d) 1 X and 1 Y chromosomes

Q2. In a pea plant the gene for yellow seeds, „Y", is dominant to the allele for green seeds, „y". A plant with green seeds must have the genotype:
   a) YY
   b) Yy
   c) yy
   d) YY or Yy

Q3. The cells in our body are of different types mainly because they all have a) different proteins
   b) different genes and organelles
   c) different carbohydrates and genes
   d) different chromosomes

Q4. Auxins
   a) promote growth in plants
   b) turn stromal cells blue
   c) control root types

d) are a type of leaf cells.

Q5. A fertilized egg is also called a
a) morula
b) blastocyst
c) zygote
d) placenta

Q6. DNA is polymer of
a) amino acids
b) glucose molecules
c) nucleotides
d) phosphates

Q7. At the end of meiosis, the number of chromosomes will be,
a) same as the mother cell
b) will be half the original number
c) will be reduced to 10%
d) will double

CHEMISTRY

Q1.When an electron jumps from a lower to a higher orbit, its energy
a) Increases
b) Decreases
c) Keeps fluctuating between very high and very low limits
d) Remains the same.

Q2. Two different compounds that share the same molecular formula are called
a) isotopes
b) isomers
c) isoforms
d) isochems

Q3. What are the oxidation states of the Na, Cr and O atoms, respectively, in sodium dichromate, $Na_2Cr_2O_7$?
a) +2, +2, -2
b) +1, +3, -2
c) +2, +6, +2
d) +1, +6, -2

Q4. The metallic luster exhibited by sodium is explained by
a) Excitation of free protons
b) Diffusion of sodium ions
c) Oscillation of loose electrons

d) Existence of body centered cubic lattice

Q5. This compound smells of rotten eggs
a) Hydrogen sulfide
b) Copper oxide
c) Lead bromide
d) Ammonia

ENGLISH

1. Select the correct word/phrase to complete the following sentence:
Sleeping, resting and _____ are the best ways to cure a cold.
a) to drink fluids
b) drank fluids
c) drinks fluids
d) drinking fluids

Q2 Read the passage and answer the question

"But man is not destined to vanish. He can be killed, but he cannot be destroyed, because his soul is deathless and his spirit is irrepressible. Therefore, though the situation seems dark in the context of the confrontation between the superpowers, the silver lining is provided by the amazing phenomenon that the very nations which have spent incalculable resources and energy for the production of deadly weapons are desperately trying to find out how they might never be used. They threaten each other, intimidate each other and go to the brink, but before the critical hour arrives they withdraw from the brink."

The phrase 'Go to the brink' in the passage means
a) Retreating from extreme danger.
b) Declare war on each other.
c) Advancing to the stage of war but not engaging in it.
d) Negotiate for peace.

MATHS

Q1. 20 men or 24 women or 40 boys can do a job in 12 days working for 8 hours a day, how many men working with 6 women and 2 boys take to do a job four times as big working for 5 hours a day for 12 days?
a) 8 men
b) 12 men
c) 2 men
d) 24 men

Q3. Rs.432 is divided amongst three workers A, B and C such that 8 times A's share is equal to 12 times B's share which is equal to 6 times C's share. How much did A get?

a) Rs.192
b) Rs.133
c) Rs.144
d) Rs.128

Q4. A bus goes 35 km in 1 hour, next 270 km in 3 hours, and next 80 km in 2.5 hours. Find the average speed:
a) 70.25 km/ hour
b) 67.54 km/ hour
c) 59.23 km/ hour
d) 88.61 km/ hour

Q5. A student attempted 108 questions in an examination. In this exam, a negative marking for every wrong answer was 1/3 and correct answer was given 1 mark. If the student scored 0 marks, how many wrong questions were attempted by him:
a) 65
b) 81
c) 42
d) 72

Q6. Solve the following system of equations:
3x+y=5   and   x+2y=3
a) x= 7/5, y=4/5
b) x= 2/3, y=2/4
c) x= 1/2, y=2/3
d) x= 3/4, y=5/6

Q7. If $x = a^2 - bc$, $y = b^2 - ca$, $z = c^2 - ab$, then the value of $((a+b+c)(x+y+z)) / (ax+by+cz)$ is,
a) 3
b) 2
c) 1
d) 0

PHYSICS

Q1. Which experiences the least electrical force in an electric field?
a) Electron
b) Beta particle
c) Gamma ray
d) Alpha particle

Q 2. What will be the change in the kinetic energy of an object with mass m and speed v directed to the right strikes a wall and rebounds with speed v_o directed to the left?
a) Zero

b) mv_o^2
c) $\frac{1}{2} mv_o^2$
d) $-\frac{1}{2} mv_o^2$

Q3. Energy required to accelerate a car from 10 to 20 m/s compared with that required to accelerate it from 0 to 10 m/s is
a) twice
b) three times
c) four times
d) same