



**FEDERAL BOARD OF INTERMEDIATE AND SECONDARY EDUCATION**  
**H-8/4, ISLAMABAD**



**BIOLOGY HSSC**  
(National Curriculum 2006)  
**PRACTICAL EXAMINATION 2024**

<b>S #</b>	<b>List of Practicals</b>
1.	Identification of bacteria from curd, mouth, or bacterial culture and observation of bacterial culture for different shapes and sizes.
2.	Study of Nostoc from fresh or preserved material.
3.	Observation and drawing of representative members of each group of Protists.
4.	Observation and drawing labeled diagrams of the life cycle of black bread mold and Penicillium from fresh culture and prepared slides.
5.	Identification of the phases of heartbeat on a printed ECG and comparison of the ECG of a cardiac patient with that of a healthy man.
6.	Differentiation of an artery and a vein by observing prepared slides.
7.	Recognizing phagocytes and lymphocytes while observing prepared slides.
8.	Identification of the different stages in chick development through observation of prepared slides.
9.	Identification of the vegetative and reproductive structures of a local fern and a Pinus and relate them with the concerned life cycles.
10.	Microscopic observation of the slide of LS of a dicot stem, identifying and drawing vessel element, vessel, and phloem sieve tubes.
11.	Microscopic observation of the villi, liver and pancreas from prepared slides.
12.	Comparison and interpretation of the X-ray films of lungs of a smoker with that of a healthy man.
13.	Comparison of the structure of skeletal, smooth and cardiac muscles with the help of prepared slides.
14.	Examination of the prepared slides of histology of ovaries and drawing its structures.
15.	Dissection of the heart of sheep and describing its internal structure.
16.	Identification of different parts of the respiratory and reproductive system of a dissected frog (dissection would be done by the teacher).
17.	Identification of the bones of the pelvic girdles, pectoral girdle, arms and legs by using the model of human skeleton.
18.	Classifying the given invertebrates into phyla by using classification key.
19.	Classifying the given chordates into classes by using classification key.
20.	Preparation and examination of the slides of animal and plant cells using differential staining.

21.	Describing the flowers of Rose, <i>Cassia fistula</i> and <i>Solanum nigrum</i> .
22.	Use of graticule and micrometer to study stomata and cells.
23.	Performing Benedict's test for reducing sugars and confirmation of the presence of starch through Iodine test.
24.	Confirmation of the presence of proteins through Biuret test.
25.	Confirmation of the presence of lipids through Emulsion test.
26.	Performing of chemical test to demonstrate that enzymes are proteins.
27.	Performing amylase test on starch with boiled amylase and un-boiled amylase in separate test tubes and confirmation through iodine test.
28.	Extraction of the leaf pigments and their separation by paper chromatography.
29.	Demonstration of the evolution of CO <sub>2</sub> from leaf discs placed in dark and light, with the help of indicator (hydrogen carbonate).
30.	Demonstration of phototropism, geotropism and thigmotropism in plants.
31.	Tests to locate buds on tongue for detection of salt, sweet, sour and bitter taste.
32.	Correlating the lub-dub sounds of the closing of heart valves with the monitoring of the heartbeat.
33.	Measuring blood pressure by using sphygmomanometer.
34.	Calculation of probability by using the dice to calculate how many times out of 100 throws can students get sixes.
35.	Data collection from the class to see how many individuals have AB blood group and construction of a pie chart and histogram for the collected data.
36.	Testing of blood group using Antisera and performing agglutination reaction for Rh factor.

**Questions to be asked in place of Practical Notebook and Viva Voce.** (Total Marks 08)  
**Write answers of any Four of the following questions on your answer sheet.**

Q.NO	Questions	Marks
1.	Assign <i>Nostoc</i> and <i>Paramecium</i> their respective kingdom.	(2)
2.	Name the bones present in pectoral girdle.	(2)
3.	Write any four main organs which you can see in reproductive system of dissected male frog?	(2)
4.	In a normal ECG, what is represented by P and T?	(2)
5.	Define thigmotropism and geotropism.	(2)

**Note:** The above questions will be asked from students as replacement of the marks of Practical Notebook and Viva Voce. The rest of the conduct/format of practical examination will continue as per practice in vogue.