Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period\_\_\_\_\_\_ Organism Code #\_\_\_\_\_\_\_\_

 **FINAL Report: Microbiology Practical Exam**

**\*\*NOTE: Must be typed. Thorough mechanism descriptions for each test must be listed whether your organism is “positive” or “negative” for the test. The test mechanism is still the same.**

**STAINS**

**Gram stain reaction**: **Approx 7 points**

* **Color**:
* **Interpretation as gram positive or negative**:
* **Morphology and arrangement**:
* **Explain the stain mechanism**.
* Why is the gram stain an important test? Why is it important to know if an organism is gram positive or negative when a patient has an infection?

**Endospore Stain**: You do NOT need to do an endospore stain, only answer the following question.

* **Based on your gram stain, would it be appropriate to perform an endospore stain on your organism?** **Explain** based on whether your organism is GP/GN and morphology. Approx 1 point.

**Acid-Fast Stain**: You do NOT need to do an acid-fast stain, only answer the following question.

* **Based on your gram stain, would it be appropriate to perform an acid-fast stain on your organism?** **Explain** based on whether your organism is GP/GN and morphology. Explain. Approx 1 point.
* Why is an acid-fast stain important medically? (ie – What does an acid-fast stain look for?)

**SUSCEPTIBILITY TESTING** (24 hours) Approx 10 points.

NOTE: Observe zones for lighter growth within them. Diameters of the zones of complete inhibition are measured. If there is an unusual pattern or there are two zones, comment on that.

|  |  |  |  |
| --- | --- | --- | --- |
| **Symbol** | **Antibiotic Name** | **Measurement (mm)** | **Interpretation (S, I, R)** |
| NB |  |  |  |
| Cip |  |  |  |
| P |  |  |  |
| SXT |  |  |  |

**PLATES – CULTURAL CHARACTERISTICS**

**Nutrient Approx 5 points. Include all of the following criteria for both the 24 hour and 48 hour readings**

* **Amount growth**. **NUMBER of colonies, not size. NG, +, ++, +++, ++++**.
* **Colony description (form, margin, elevation, size in mm, color)**:
* **Relative SIZE of colonies compared to EMB & PEA**
* **Mechanism & Purpose of plate (**Is it general growth, selective, differential? What ingredients does the plate contain & what is the purpose of each ingredient? If appropriate, why do certain bacteria grow/not grow, why do certain colors form & why & what they mean, etc.)

**EMB: Approx 5 points. Record observations for 24 & 24 hours.**

* **Amount growth. NUMBER of colonies, not size. NG, +, ++, +++, ++++.**
* **Colony description, color:** (NOTE: If both dark purple and pink/light purple colonies are present, write the summary based on the dark purple color. Dark colonies may turn pink after longer incubation.)
* **Relative SIZE of colonies compared to Nutrient & PEA:**
* **Interpretation (What does the plate tell you about the organism):**
* **Mechanism & Purpose of plate (**Is it general growth, selective, differential? What ingredients does the plate contain & is the purpose of each ingredient? If appropriate, why do certain bacteria grow/not grow, why do certain colors form & why & what they mean, etc.)

**PEA agar** 24 hours only. Approx 4 points**.**

**• Amount growth. NUMBER of colonies, not size. NG, +, ++, +++, ++++.**

**• Colony description, color:**

**• Relative SIZE of colonies compared to Nutrient & EMB:**

**• Interpretation (What does the plate tell you about the organism):**

* **Mechanism & Purpose of plate (**Is it general growth, selective, differential - what does it **contain**? If appropriate, why do certain bacteria grow/not grow, why do certain colors form & why & what they mean, etc.)

**TUBES & MISCELLANEOUS TESTS**

\*\*For all of the remaining tubes, plates, and tests (as appropriate). For each test include the following:

1. Growth characteristics and observations
2. Test interpretation including appropriate terms
3. Explain the test mechanisms and/or basis for your interpretations.

**Catalase test:** Approx 3 points.

* **Observations:**
* **Interpretation. What does it tell you about the organism?** Include the equation that catalase catalyzes. Based on your catalase result, what group(s) of bacteria might your organism belong to? Why do bacteria need catalase? Explain. (Refer to Lab #19 if needed)
* **Mechanism of the test:**

**OF-Glucose tubes:** (24 hours) Approx 6 points

* Color of both tubes
* Interpretation
* Mechanism of the tubes including all possible reactions and observations.
* **Motility -** read from OF-G. (24 hours) Include observations and interpretation. Approx 2 points.

**Starch hydrolysis**: (24 hours) Approx 3 points

* Reaction color
* Interpretation as positive or negative & what that tells you about the organism
* Mechanism of the plate.
* Include reaction equation and enzyme that catalyzes the reaction.

**TSI slant**: (48 hours) Approx 11 points.

* Include colors
* Proper interpretation –both in symbols and explanation
* Mechanism of the tube including all possible reactions (not just the reaction your organism had) and all corresponding possible interpretations.

**ANALYSIS & CORRELATION OF ALL PLATES** Approx 6 points

* Compare **each** selective or differential plate and your susceptibility test to your gram stain.
* Explain why each plate does or does not correlate with your gram stain.
* Include potential errors that would account for any discrepancy.

**Additional comments, unusual observations, or conclusions. Approx 4 points.**

**\*\*Approximately 10 points given simply for plate set up, process, documentation, dates, etc.**