Answers.

Q1. Steps	Identification
1A, 2A, 3B, 5B, 6A.	Chocolatus cyssan
1B, 7A, 8A, 11A.	Mono
1A, 2A, 3B, 5B, 6B.	Steora explodus

Q2. Gram positive (Purple) cocci.

Staphylococcus	Streptococcus
Clusters.	Linear.
Started bubbles has catalase. (catalase Gram stain)	Killed in addition of ~~H_2O~~ ~~H_2O_2~~ H_2O_2

Classification of staphylococcus bacteria.

(i) Staphylococcus aureus
Varulent factors
Catalase - Limits ability of neutrophils to kill bacteria since use H_2O_2.
Coagulase - Cause plasma to clot around the bacteria forming a wall.
Protein A - Binds to antibodies specifically IgG at Fc region prevent activation of Complement
Enterotoxin - Waterly nonbloody diarrhoea.
Toxic shock syndroe toxin
Exfoliatin - Scaled skin syndrome.
Alpha toxin - Nucrosis of the skin and hemolysis.

(ii) staphylococcus Epidermidis.
S. epidermidis is usually hospital aquired from catheters, prosthetic joints or anything else insested into the blood that is invasive. Produce glycocalyx (biofilms). Treated with vancomycin

(iii) Staphylococcus saprophyticus
If young (late teens or early 20s) and sexually active womens. ~~Staphylococcus~~ saprophyticcus is likely to cause secondary to E. coli. Treated with quinoione.

Differentiate between staph. organisms.

Species	Coagulase	Hemolysis	Exotoxins.
S. aurous	+	Beta	Enterotoxin, TSST, Exfoliatin, Alpha toxin
S. epidermidis	-	None	None.
S. saprophyticus	-	None	None.

Q3. Streptococcus species can be categorised by C. carbohydrate located on the cell wall.

(i) Streptococcus pyogens - Group A streptococcus.
(ii) Streptococcus Agalactiae - Group B Streptococcus.
(iii) Entercoccus and streptococcus Bovis - Group D strep.
(iv) Streptococcus pneumoniae - None
(v) Viridans strep - None.

Virulence factors.

→ M. protein - This determines the type of group A B-hemolytic streptococci. It is anti-phagocytic.

→ Contain capsules important for S. pneumoniae that is antiphagocytic.

→ Erythrogenic toxin - cause scarlet fever

→ Streptolysin O. The 'O' means inactivated by oxygen. The lysin means hemolytic

→ Streptolysin S - Also hemolytic but not activated by oxygen.

→ Pyogenic exotoxin - Toxin shock syndrome.

→ Produces Hyaluronidase. streptokinase - anticoagulant and Dnase.

Species	Hemolysis	Diagnostic features
S. Pyogenes	B	Bacitracin Sensitive
S. agalacticae	B	Bacitracin resistance
Entrococcus	Any type	Growth in 6.5% NaCl (extremely resilient).
S. bovis	Alpha or None	No growth in 6.5% NaCl.
S. pneumoniae	None.	Bile soluble
Viridans	Alpha	Not bile-soluble resistant to optochin.

Q4.

Gram + bacillus bacteria

Characteristics

Aerobic & Anaerobic

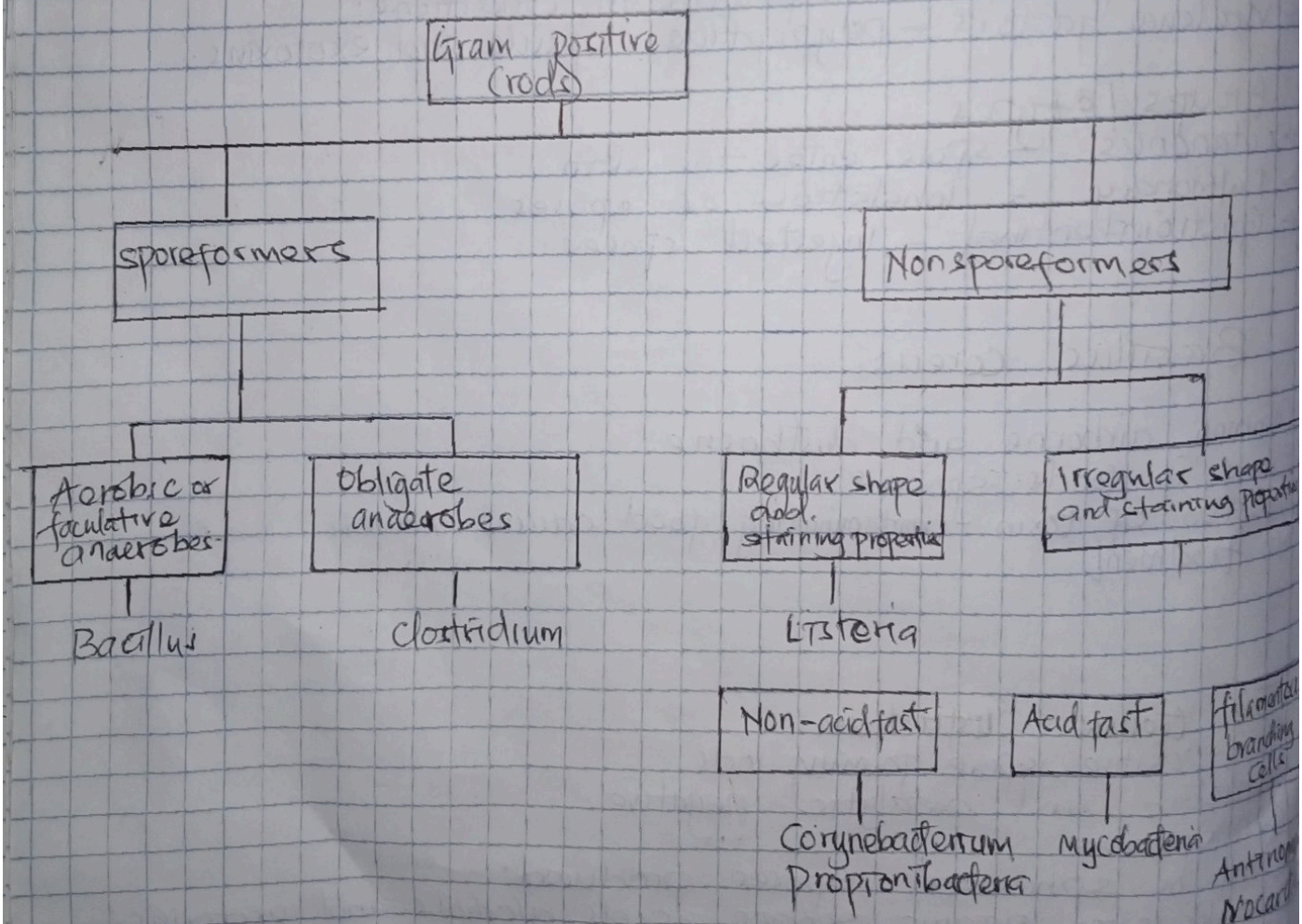
Spore forming nonspore forming.

Rod shaped & irregular shaped.

Gram +ve bacillus Groups

- Endospore-formers
- Non-endospore formers.
- Irregular shaped or weak

Chart for differentiating Gram positive Bacilli



General characteristics of Bacillus

- Gram positive
- Endospore forming
- Motile rods
- Mostly saprobic
- Versatile in degrading complex macromolecules
- Source of antibiotics
- Primary habitat is soil.
- 2 species of medicinal importance
  (i) Bacillus anthracis
  (ii) Bacillus cereus

Bacillus anthracis

Characteristics

- Large, block shaped rods
- Central spore that develop under all conditions.
- Virulence factors – polypeptide capsule and exotoxins.

Groups / types

- Cutaneous – spore enter the skin.
- Pulmonary – inhalation of spores
- Gastrointestinal – ingested spores.

Bacillus cereus.

Common airborne and dustborne.
Grows in foods, spores
Ingestion of toxin - contaminating food causes nausea.
No treatment

The Genus Clostridium

Gram-positive, spore forming rods
Anaerobic and catalytic negative.
120 species
Oval or spherical spores produced.
Synthesize organic acids, alcohols and exotoxins.
Cause wound infections