occur by binary
y which a cell
itself and
artitioned into
make new

→ Lag phase ⇒ Here there is little or no increament in cell growth (adaptation)

→ Exponential phase : There is rapid cell division occurence

waste product accumulate and oxy
almost gone.

Decline/death Phase : If the cell is not t
to another environment, it may lead to d

conjugation : This
direct transfer of gen
materia from a donor
receptive bacteria aft
contact. It is unique
bacteria and quite d
from chromosome transf
higher organism - it inv
union of cells designated as
and female and the paired
are connected by short tubu
It takes about 100mins for a c
Plate transfer of genetic mate
to occur. However, the transfe
not completed.

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Faculty of Science

Deapartment of Plant science and Applied Zoology

2011/12 Harmattan Semester Examination.

BIO 203: Biometrics **Time allowed: 1hr** **Date: 070712**

Instruction: Answer 1 question from section A and any two from section B.

SECTION A

1a. State the properties of Binomial Distribution

1b. Out of 200 families with 5 children, how many would you expect to have:

(I) Exactly 2 boys
(II) Between 3 and 5 boys
(III) Between 1 and 3 boys inclusive

2a. What is the mean of Poisson Distribution.

2b. The probability of suffering a side effect from a certain vaccine fluid is 0.001. If 4,000 people were inoculated, find approximately the probability that:

(i) At most 2 people suffer side effect
(ii) No person suffers side effect
(iii) At least one person suffers side effect.

SECTION A

3a. Illustrate with a table various situations that could arise when testing H_o against H_1 in biometrics.

3b. Enumerate the general procedure and steps involved with any test of significance.

3c Mean haemoglobin level of 20 children was 10.6 g/dl. Is it significantly different from population (or fixed value) mean value of 11.0 g/dl with a standard deviation of 0.15? ($Z_{0.05}$=1.96; $Z_{0.01}$= 2.57; $Z_{0.001}$= 3.29).

4a. Twenty-four experimental animals with vitamin D deficiency were divided equally into two groups. Group 1 receiving treatment with vitamin D and group two without vitamin D. At the end of the experimental period, serum calcium determination was made and results are provided below

Details	Serum calcium (Mean ± SD)	Sample size
Group 1	11.1± 0.50	12
Group 2	7.8 ± 0.75	12

Can we conclude that mean serum calcium levels are not different between the two groups?

Capsule : These are secretion of slimy or gummy ma
rial made up of polysaccharide deposited outside
the cell wall.

FUNCTIONS OF THE LABELLED PARTS

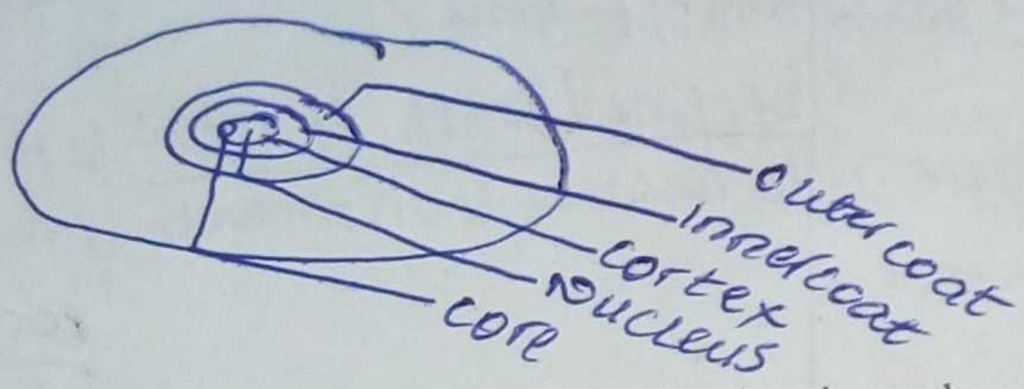
CAPSULE : - It helps in adhesion of specific or non-specific adherance of bacteria to
particular surfaces.

in nature
- If it a sepcial pilus known as F-pilus / sex pilus, it help
transfer DNA btw mating bacterias

Flagella : It enable swimming movement and strength

cell wall : It gives rigidity, ~~and~~ shape ~~to cell~~ to a cell

cell membrane : Apart from being selectively permeable, it also play a significant role during respiration.



4b The proportions of children with constipation in male and female children were 0.40 and 0.20 respectively. Numbers of subjects studied were 20 in both groups. Can we conclude that there is significant sex difference in constipation prevalence?

5a. Velocities of height (cm) and weight (kg) are studied in two groups of infants with calorie protein adequacies in their dietaries. The results noted are given below. Can we conclude that velocities of height and weight are higher in those of infants with adequacies than those with inadequacies? It is noted that velocities of height and weight follow normal distribution.

Data given:

Details	Calorie-Protein adequacies	
	Yes: A	No: B
1, Sample size	10	10
2, Height (cm) velocities	5.5 ± 1.5	3.5 ± 2.0
3, Weight (Kg) velocities	1.0 ± 0.25	0.7 ± 0.30

Value given are mean ± SD; For 18df, $t_{0.05} = 2.10$ and $t_{0.01} = 2.88$

5b. In a sample of 6 subjects who were on high intake of calories, the gain calf circumference as observed subjectwise is given below

Subject	1	2	3	4	5	6
Gain in calf circumference (cm)	11	10	9	7	12	8

Given that df, $t_{0.05,5} = 2.571$; $t_{0.01,5} = 4.032$; $t_{0.001,5} = 6.869$. Can we conclude that there is a significant gain in calf circumference against nil effect?