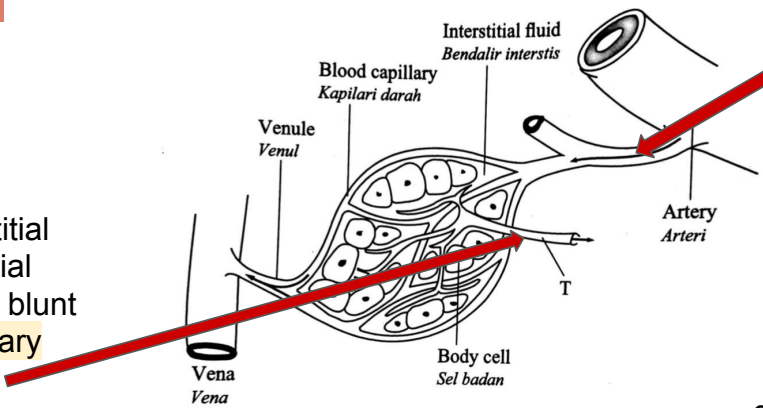


# QUESTION 6

2016

## FORMATION OF LYMPH IN LYMPH CAPILLARY

- 8. To become lymph
- 7. 10-15% of interstitial fluid in the interstitial space diffuse into the blunt end of lymph capillary



1. Blood flows from arterial end of capillaries which has smaller diameter

2. Create higher hydrostatic pressure

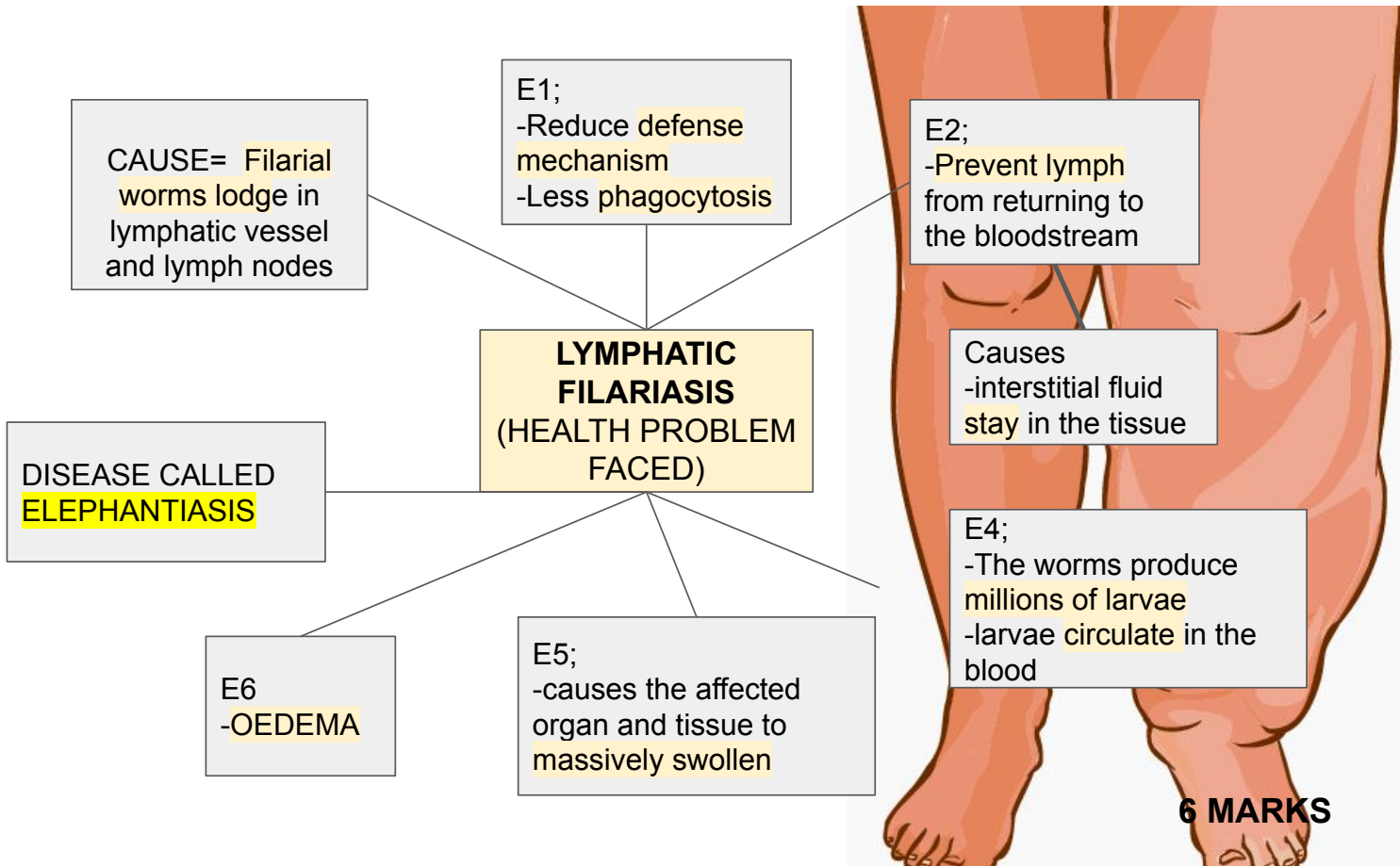
3. force small molecules substance filtered out of blood capillary wall

6. Bathes the cell

5. Form interstitial fluids which fill space between cell

4. large molecules such as erythrocytes, large proteins and platelets are not filtered out

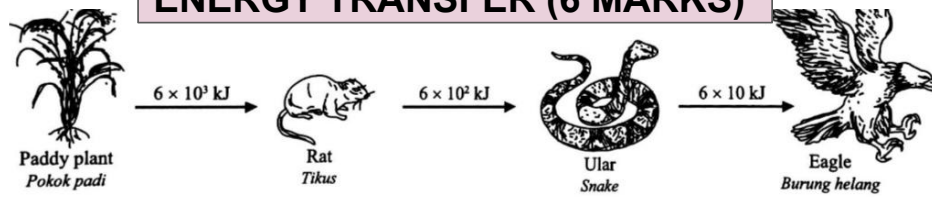
6 MARKS



6 MARKS

**QUESTION 7**

**ENERGY TRANSFER (6 MARKS)**



1. The food chains shows flow of energy from one trophic level to another

2. Producer received the highest energy from the Sun

3. Light energy changed to chemical energy through photosynthesis

4. When \_\_\_ eats \_\_\_\_\_ , energy transferred to \_\_\_\_

5. 10% energy transferred and 90% energy loss through surrounding

6. Energy loss As respiration, reproduction, activity, defecation

7. The \_\_\_\_\_ obtain the lowest energy in the food chain

REPEAT

**FLOW CHANGES IN POPULATION SIZE (prey predator)**

The interaction is prey-predators

Rat-prey Owl -predator

Control method- Biological control

Thus, population prey decrease as eaten by predator

Because predator has sufficient food

Population size of predators also increase

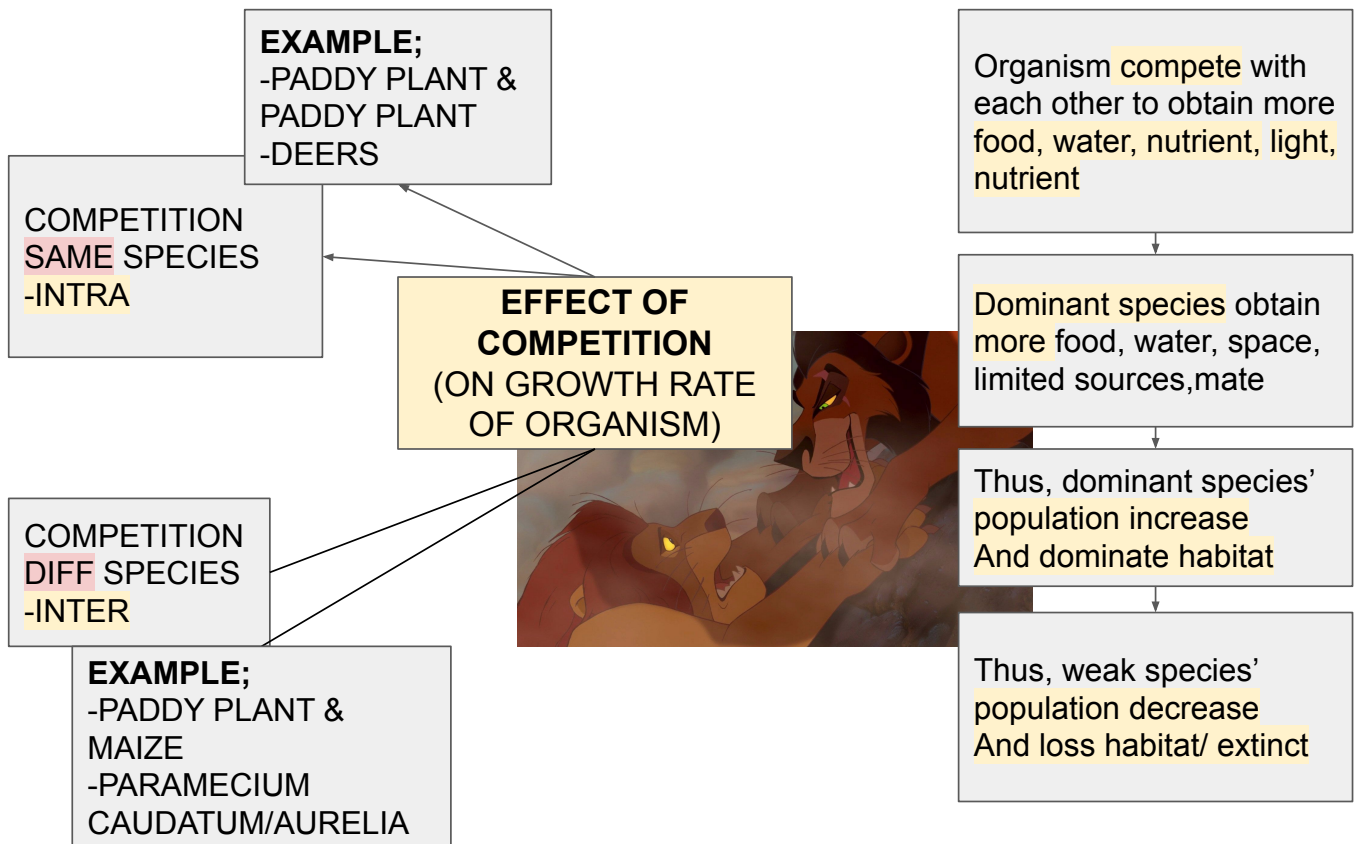
When sufficient food, prey's population increase

Population prey also decrease due to lack food

POPULATION PREY CONTROLS POPULATION PREDATORS

POPULATION BOTH IS DYNAMIC EQUILIBRIUM

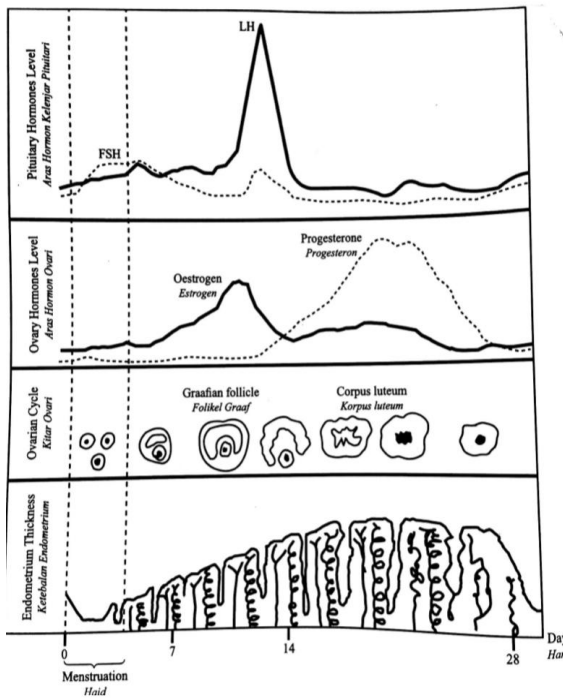
**8 MARKS**



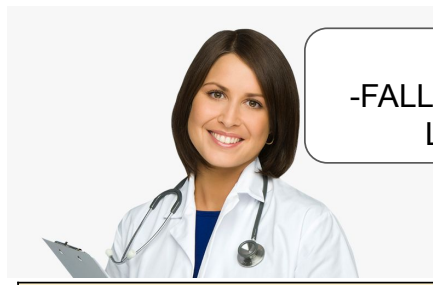
**6 MARKS**

# QUESTION 8

## MENSTRUAL CYCLE (10 MARKS)



<b>DAY 1-6</b>	<ul style="list-style-type: none"> <li>• Pituitary gland secrete <b>FSH</b></li> <li>• <b>FSH stimulate</b> the development of graafian follicle</li> <li>• Endometrium wall <b>disintegrate</b></li> <li>• Blood discharge/ <b>Menstruation</b></li> </ul>
<b>DAY 7-13</b>	<ul style="list-style-type: none"> <li>• Follicle cells secretes <b>oestrogen</b></li> <li>• Oestrogen helps <b>repair</b> endometrium wall</li> <li>• Oestrogen <b>inhibit</b> the secretion of FSH by pituitary gland</li> <li>• Oestrogen will <b>stimulate</b> the secretion of <b>LH</b></li> </ul>
<b>DAY 14</b>	<ul style="list-style-type: none"> <li>• LH stimulate <b>ovulation</b></li> <li>• Graafian follicle will release <b>secondary oocyte</b></li> <li>• LH promotes formation of <b>Corpus Luteum</b></li> </ul>
<b>DAY 15-28</b>	<ul style="list-style-type: none"> <li>• Corpus Luteum secrete <b>progesterone</b></li> <li>• Progesterone will <b>maintain thickness</b> of endometrium wall</li> <li>• If no fertilisation, <b>Corpus Luteum degenerates</b></li> <li>• Thus, <b>reduces</b> the production of progesterone</li> <li>• Endometrium wall start <b>disintegrate/ Menstruation</b> cycle repeat</li> </ul>



**COUPLE 1**  
-FALLOPIAN TUBE BLOCKED & LOW SPERM COUNT

**COUPLE 2**  
WEAK UTERUS & HEART PROBLEM

## ADVICE AND SUGGESTION (10 MARKS)

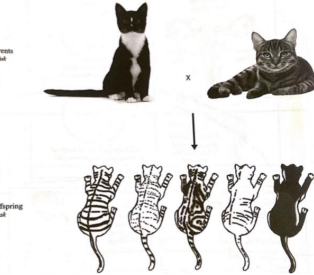
SUGGESTION 1- IVF	SUGGESTION 2- ARTIFICIAL INSEMINATION	SUGGESTION 3- GIFT/ZIFT
<ul style="list-style-type: none"> <li>• Perform IVF</li> <li>• Secondary oocytes/ovum taken out from ovary by using laparoscopy</li> <li>• Sperm and ovum are fertilised in in culture medium</li> <li>• Containing nutrients for growth</li> <li>• Zygote allowed to grow in embryo/mitosis to form embryo</li> <li>• Embryo implanted into uterus of biological mother couple 1</li> <li>• surrogate mother for couple 2</li> </ul>	<ul style="list-style-type: none"> <li>• Performs artificial insemination</li> <li>• Collects sperms from husband until certain concentration</li> <li>• They are placed in uterus lining of wife</li> <li>• It increase chances of fertilisation</li> </ul>	<ul style="list-style-type: none"> <li>• Perform gamete intra-fallopian transfer (GIFT)</li> <li>• Perform zygote intra-fallopian transfer (ZIFT)</li> <li>• It increase the chance of fertilisation</li> </ul>

# QUESTION 9

## FACTORS OFFSPRINGS ARE DIFFERENT FROM PARENTS (VARIATIONS)

### ENVIRONMENTAL FACTOR

-temperature, humidity, nutrition, soil fertility  
 Hydrangaea sp. (blue acidic, pink alkaline)  
 -sunlight changes a persons hair and skin colour



### GENETIC FACTOR

SEXUAL REPRODUCTION	MUTATION -due to mutagens
<p><b>-CROSSING OVER</b>                      -during Prophase I                      -between 2 non-sister chromatids                      -exchange DNA segment</p>	<p><b>-GENE MUTATION</b>                      -mistakes that occur during DNA replication                      -Base Insertion                      -Base Deletion                      -Base Substitution                      -sickle cell anemia, albinism</p>
<p><b>-INDEPENDENT ASSORTMENT</b>                      -during Metaphase I                      -random arrangement and separation of homologous chromosomes</p>	<p><b>-CHROMOSOMAL MUTATION</b>                      1. Changes number of chromosomes                      -during anaphase I                      -Down's Syndrome C21</p>
<p><b>-RANDOM FERTILISATION</b>                      -fertilisation male and female gamete occurs randomly produces zygote</p>	<p>2. changes in structure                      -Inversion                      -Translocation                      -Deletion                      -Substitution</p>

### INTERACTIONS BETWEEN GENETIC AND ENVIRONMENTAL FACTOR

-peppered moth  
 -camouflage  
 -prevent extinction /survival  
 -adapt environment/ withstand weather  
 -increase resistance to disease and pests

\*can insert continuous & discontinuous variation

**10 MARKS**

## RHESUS SUGGESTION TO MARRY (10 MARKS)

SUSAN RhRh	TINA Rhrh	RAUL rhrh
<ul style="list-style-type: none"> <li>• Can <b>marry</b> Rhesus +/- <b>man</b></li> <li>• <b>Genotype</b> Susan is RhRh</li> <li>• Susan produces 100% <b>gametes</b> that carry Rh (dominant allele)</li> <li>• Gamete dominant allele <b>fertilise</b> with dominant/recessive allele from husband</li> <li>• <b>Offsprings</b> 100%/50% RhRh</li> </ul>	<ul style="list-style-type: none"> <li>• Must <b>marry</b> homozygous Rhesus + (RhRh) <b>man</b></li> <li>• <b>Genotype</b> Tina is heterozygous(Rhrh)</li> <li>• Tina produces <b>gamete</b> dominant and recessive allele</li> <li>• Man produces 100% <b>gamete</b> dominant allele, Rh</li> <li>• Fertilise</li> <li>• <b>Offsprings</b> 50% RhRh, 50% Rhrh</li> </ul>	<ul style="list-style-type: none"> <li>• Must <b>marry</b> Homozygous rhesus+ (RhRh) <b>woman</b></li> <li>• <b>Genotype</b> Raul is rhrh (recessive allele)</li> <li>• Raul produces 100% <b>gamete</b> recessive allele</li> <li>• Wife produces 100% <b>gamete</b> dominant allele</li> <li>• Fertilise</li> <li>• <b>Offspring</b> 100% heterozygous (Rhrh)</li> </ul>

+ lukis diagram beserta label

**10 MARKS**