

**WAKISSHA JOINT MOCK EXAMINATIONS
SCORING GUIDE**

Uganda Advanced Certificate of Education

BIOLOGY P530/1

July/August 2025



03B 02.

SECTION A (40 MARKS)

- | | | | |
|-------|-------|-------|-------|
| 1. D | 11. D | 21. C | 31. D |
| 2. C | 12. A | 22. C | 32. C |
| 3. A | 13. A | 23. A | 33. B |
| 4. D | 14. D | 24. D | 34. C |
| 5. A | 15. A | 25. B | 35. B |
| 6. C | 16. D | 26. D | 36. C |
| 7. A | 17. D | 27. A | 37. A |
| 8. C | 18. A | 28. B | 38. D |
| 9. B | 19. D | 29. D | 39. B |
| 10. C | 20. B | 30. C | 40. D |

1 x 40 = 40 marks

SECTION B (40 MARKS)

also include adjustments.

41.a (i)	Is a period of time during which the individual becomes to the low partial pressure of oxygen; <i>adapted.</i>	01
<i>- increased myoglobin.</i> <i>Increased Ventilation Rate to take in more O₂</i> (ii)	<i>→ increased cardiac output to pump more blood,</i> <i>Lowered heart rate</i> <i>Increased production of Red blood cells to increase the carrying of O₂ up</i> <i>Enlargement of blood vessels to act as blood reservoir.</i> <i>Construction of blood vessels to relevant to oxygen.</i> <i>Increased haemoglobin concentration</i> <i>→ increased lung surface area to increase O₂ uptake</i>	03
<i>→ increased capillary network in tissues to increase blood flow.</i> b (i)	As the lungs inflate impulses from the stretch receptors; to the ventilation center increase; until such a frequency that they inhibit inspiration;	03 <i>Consider the process</i>
(ii)	This increases acidity of blood and tissues fluids; inhibiting enzymes; and therefore stopping essential metabolic processes;	03 <i>consider the process</i>
42. a (i)	Repeated divisions of the germinal epithelial cells; Produces a large number of spermatogonia; that can undergo meiosis to produce many sperms;	10 MARKS 03
(ii)	Crossing over; during meiosis causes re-arrangement of alleles on each chromosome; Independent assortment of chromosomes at metaphase;	04

	orientation of bivalents is random which increases variation in gametes; <i>(cysters chromatides)</i> .	
Reject both have x chromosomes	Both produced by meiosis; <i>- Both are gametes. → (Reproductive cells);</i> b) Both Are haploid; Both Single cells; single nucleus <i>- Both are produced by</i> Both Both formed from germinal epithelium <i>reproductive organs.</i>	Any 3 03
	SUB TOTAL	10 MARKS
43. Acceptable	Gene is a specific sequence of bases on DNA; WTTE while an allele is an alternative form of a gene;	2 marks
Reject if there is no cross. - Gametes not circled. - If other letters are used, they must be defined.	Parental phenotype - carrier x carrier Parental genotype $Hb^A Hb^S \times Hb^A Hb^S$ ✓ Gametes $(Hb^A) (Hb^S) (Hb^A) (Hb^S)$ ✓ Fertilization $Hb^A Hb^A Hb^A Hb^S Hb^S Hb^S$ Normal Carrier Sickle Phenotypes Normal Carrier Sickle Probability is $\frac{1}{4}$ or 25% ✓	5 marks
	c) Sickle cell anaemia is fatal; heterozygous condition confers an advantage; of resistance to malaria; so more numbers.	03
	SUB TOTAL	10 MARKS
44.a	Genetic diversity is the number of different alleles of genes in a given species / population;	1x1 = 01mark
b)	- Mutations in the DNA which lead to formation of new allele; - Gene flow / different alleles being introduced into a population when individuals from another population migrate into them and reproduce;	1x2 = 02marks
(i) c)	Not all individuals in a population are as likely to reproduce as each other; there is differential reproductive success in a population; Individuals that have an allele that increases their chance of survival are more likely to survive, reproduce and pass on their genes including the beneficial allele to the next generation; than individuals with different alleles; This means that the greater proportion of the next generation inherits the beneficial allele; They in turn are more likely to survive, reproduce and pass on their genes; so the frequency of the beneficial allele increases from generation to generation;	1x 04 marks. 1x7=07marks
(ii)	- Reduces heterozygosity - Reduces genetic diversity - Loss of alleles <i>→ Maintenance of poor traits in the population.</i>	

	- Leads to expression of harmful recessive alleles	Any 3 1x3 = 03.
	SUB TOTAL	= 10 MARKS
45		
a (i)	Adding CO ₂ increases the rate of plant growth compared to when or CO ₂ is added;	01
(ii)	CO ₂ increase the rate of photosynthesis; leading to increased production of glucose; which provides a respiratory substrate to produce more ATP; for cell division / DNA replication / protein synthesis / growth;	04
b(i)	This increases the rate of photosynthesis; leading to higher yields / productivity; in a shorter period of time.	02
(ii)	Allows for controlled environmental conditions; for reliable results;	02
c)	Light intensity / temperature / water availability / nutrients;	01
46.a(i)	Glucose, a-a and urea filtered into the Bowman's capsule; as they are small molecule' - Only a small amount of protein filtered; as they are too large to filter through basement membrane; More smaller than medium sized proteins filtered because of their small size;	04
(ii)	Glucose is actively transported out; of tubule cells into intercellular spaces by carrier mechanism; It enters permeable capillaries by diffusion;	03.
(b)	More - The blood solute pot causes more ADH to be released; ADH binds to receptors; causing reabsorption of more water from the collecting ducts into blood;	03.
	SUB TOTAL =	10 MARKS

END

05B 02.