ANSWER KEY

MODEL SUMMATIVE ASSESSMENT - TERM II 2025-26

BIOLOGY

Class: X

Time: 1½ Hours

Total Score: 40

1-Mark Questions (1–4)

1. c) Independent nerve endings
2. c) Vasopressin (ADH)
3. a) 1-ii, 2-i, 3-iii
4. b) Pineal gland

2-Mark Questions (5–11)

5A.
a) A receptor is a specialised cell/nerve ending that detects a stimulus.
b) The receptor generates receptor potential → action potential → impulse begins in sensory neuron.

5B. (If chosen)
a) Cochlea
b) Converts vibrations into nerve impulses through hair cells in Organ of Corti.

6.
a) Photoperiodism is the response of plants to the length of day and night for flowering.
b) Phytochrome detects light duration and triggers flowering signals in the shoot apex.

7.
a) Conversion of glucose to glycogen (glycogenesis).
b) Insulin lowers blood glucose by increasing cellular uptake and converting excess glucose to glycogen.

8.
a) Thyroxine
b) Controls metabolism / regulates body temperature / supports brain development (any one).

9.
a) Diabetes mellitus
b) Glucagon increases blood glucose by breaking down glycogen in the liver.

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10A.
a) Phototropism
b) Auxin accumulates on the shaded side → cells elongate more → stem bends toward light.

OR (10B)
a) Cone cells
b) Three types of cones respond to different wavelengths; combined stimulation produces colour vision.

11.
a) At night / in darkness
b) Screen light suppresses melatonin; reduces sleepiness and disrupts sleep cycle.

3-Mark Questions (12–17)

12.
a) P = Shaded side of stem
b) Auxin moves to shaded side → increases cell elongation → bending occurs.
c) Used as rooting hormone / weedicide.

13A.
(i) Tympanum – receives vibrations
(ii) Organ of Corti – generates impulses
(iii) Eustachian tube – equalises pressure

OR 13B
a) Semicircular canals / vestibular apparatus
b) Movement of endolymph bends hair cells → impulses form
c) Fluid continues moving after spinning → conflicting signals → dizziness

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14.
a) Uterine contraction / milk ejection (any one or both)
b) Hypothalamus controls pituitary through releasing and inhibiting hormones
c) TSH / ACTH / GTH / GH / Prolactin (any one)

15.
a) Calcitonin – Thyroid gland; Parathormone – Parathyroid gland
b) Calcitonin lowers calcium; parathormone raises calcium to maintain 9–11 mg/dL
c) Weight loss / rapid heartbeat / sweating (any one)

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16A.
a) Cytokinins promote cell division and delay ageing.
b) Ethylene speeds up ripening by breaking down chlorophyll and softening tissue.
c) Uniform ripening / improved yield (any one)

OR 16B
a) Pain receptors / nociceptors
b) Receptor → sensory neuron → spinal cord → brain
c) Prevents injury / protection response

17.
a) Excess urine production / dehydration
b) Low GH secretion during childhood
c) Controls male characteristics / sperm production (any one)

4-Mark Question (18A or 18B)

18A.
a) Pinna → Auditory canal → Tympanum → Ossicles → Oval window → Cochlea → Auditory nerve
b) Vibrations move fluids → hair cells bend → impulses form in Organ of Corti
c) Equalises pressure in middle ear

OR 18B
a) Ghrelin pathway: Brain (hypothalamus)
Leptin pathway: Hypothalamus
b) Ghrelin increases appetite; leptin decreases appetite by signalling fullness
c) Without leptin, appetite remains high → overeating → obesity

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