KERALA PLUS ONE BOARD EXAMINATION 2026

Answer Key –

Botany (FY-126)

Section I (1 Mark)

1. *Fungi*
2. *Pteridophytes (Option C)*
3. *Reticulate venation*
4. *Equational division*
5. *Apical meristem*

Section II (2 Marks)

6. *Cause of Red Tide*

- *Caused by bloom of dinoflagellates (e.g., Gonyaulax).*

Effects

- *Release toxins harmful to marine organisms.*
- *Causes death of fishes and shellfish poisoning in humans.*

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7. *Heterospory*

- *Production of two types of spores: microspores and megaspores.*

Examples

- *Selaginella*
- *Salvinia*

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8. *Two differences between dicot and monocot vascular bundles*

Dicot Stem	*Monocot Stem*
Vascular bundles arranged in a ring	*Vascular bundles scattered*
Open (with cambium)	*Closed (without cambium)*

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9. *Bulliform cells*
Large motor cells present in the upper epidermis of grass leaves.

Function

- *Help in rolling and unrolling of leaves during water stress to reduce transpiration.*

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10. *Plastid diagram (page showing chloroplast diagram)*

a) Chloroplast

b)

- *A – Granum*
- *B – Stroma*

c) 70S ribosomes

11.

a) Endomembrane system components

- *Endoplasmic reticulum*
- *Golgi apparatus*
- *Lysosome*
- *Vacuole*

b) Organelle with hydrolytic enzymes
Lysosome

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12. *(C3 pathway)*

a) C3 plants

b) Melvin Calvin

c) RuBisCO

d) Ribulose-1,5-bisphosphate (RuBP)

13.

a) Respiratory quotient (RQ)
Ratio of CO_2 evolved to O_2 consumed during respiration.

b) Two substrates

- *Glucose (carbohydrates)*
- *Fat / Organic acids / Proteins (any two)*

14.

a) Compounds from Krebs cycle:

- $NADH_2$
- $FADH_2$

b) ATP produced:

- $NADH_2 \rightarrow 3\ ATP$
- $FADH_2 \rightarrow 2\ ATP$

(Traditional NCERT value used in Kerala exam scheme)

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15. Plant hormones – Functions

Hormone	Function
Auxin	Induction of parthenocarpy
Gibberellin	Increase length of stem in sugarcane
Cytokinin	Helps overcome apical dominance
Ethylene	Ripening of fruits

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16. Plant growth is indeterminate

- Plants grow throughout their life due to active meristems.
- Meristematic tissues continuously divide producing new cells.
- Therefore plant growth does not stop at maturity, unlike animals.

Section III (3 Marks)

17. Mango fruit diagram (page showing labelled fruit)

a)

- A – Mesocarp
- B – Endocarp

b) Mesocarp nature

- Mango – fleshy
- Coconut – fibrous

c) Fruit type: Drupe

Characteristics

- *Fleshy mesocarp*
- *Hard stony endocarp enclosing seed*

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18. Cell cycle diagram (page showing cycle chart)

a)

- *A – G1 phase*
- *B – S phase*
- *C – G2 phase*

b) Exception organism
Honey bee (Apis)

c) Reason S phase called synthesis phase

- *DNA replication occurs*
- *Chromosomes duplicate to form sister chromatids.*

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19. C4 plants

a) Kranz anatomy

b) Advantages of C4 plants

1. *No photorespiration*
2. *Higher photosynthetic efficiency*
3. *Better CO_2 fixation at high temperature*
4. *Higher water use efficiency*

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20. TCA cycle diagram (page showing cycle)

a) Substrates

- *A – Citric acid (Citrate)*
- *B – α-Ketoglutaric acid*
- *C – Fumaric acid*
- *D – Oxaloacetic acid*

b) Scientist
Hans Krebs

c) Step where GTP is synthesized
Succinyl-CoA → Succinic acid