BIOLOGY

BOOKS - KUMAR PRAKASHAN KENDRA BIOLOGY (GUJRATI ENGLISH)

ANATOMY OF FLOWERING PLANTS

Section A Exam Oriented Questions Answers From Darpan

1. What is anatomy ?

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2. What is meant by tissue ? Which are two main types of tissue ?

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3. What is meant by meristematic tissues ? Explain its various types.

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4. What is meant by permanent tissue ? Give its types.

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5. Write a note on Epidermal Tissue system.

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6. Write a note on Ground Tissue system.

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7. Write a note on the vascular Tissue system.

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8. Describe internal structure of dicot root.

OR

Describe internal structure of sunflower root.

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9. Describe internal structure of monocot (Maize) root.

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10. Describe internal structure of (sunflower stem) of young stem of dicot plant.

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11. Describe internal structure of monocot stem.

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12. Decribe the internal structure of a dorsiventral leaf with the help of labelled diagrams.

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13. Describe internal structure of Isobilateral (Monocotyledonous) leaf.

OR

Describe internal structure of maize leaf.

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14. What is meant by secondary growth? Which are its type ?

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15. Describe vascular cambium responsible for secondary growth in detail.

16. Describe contribution of cork cambium in secondary growth.

17. Explain the process of secondary growth in roots.

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Section B Diference Scientific Reasons Give Differences

1. Collenchyma and Sclerenchyma

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2. Sieve cell and Sieve tubes

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3. Tracheids and Vessels

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4. Parenchyma Tissue and Sclerenchyma

Watch Video Solution

5. Heartwood and Sapwood

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6. Dicot root and Monocot root

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Section B Diference Scientific Reasons Give Reason

1. Bulliform cells are present in maize leave.

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2. Vascular tissues are also called complex tissue.

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Section C Defination Explanation Terms Location Function Definations Explanation

1. Early wood

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2. Late wood

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3. A dorsiventral Leaf

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4. What is periderm ? How does periderm formation take place in the dicot stems ?

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5. Conjoint vascular bundles

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6. What is meant by secondary growth ? Explain formation of cambial ring.

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7. Endoarch vessels

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8. Exoarch vessels

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Section C Defination Explanation Terms Location Function Location Function

1. Fasicular cambium

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2. Pericycle

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3. What is casparian strip ?

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4. Strach sheath

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5. Resin duct

Watch Video Solution

6. Passage cells

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7. Albumin cells

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Section D Textual Exercise

1. State the location and function of different types of meristems.

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2. Cork cambium forms tissues that form the cork. Do you agree with this statement ? Explain.

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3. Cut a transverse section of young stem of a plant from your school garden and abserve it under the microscope. How would ascertain wheater it is a monocot stem or a dicot stem ? Give reasons.

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4. The transverse section of a plant material shows the following antomical features :

(a) the vascular bundles are conjoint, scattered and surrounded by a sclerenchymatous bundle sheaths.

(b) Phleom parenchyma is absent. What will you identify it as ?

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5. Why are xylem and phleom called complex tissue?

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6. What is stomatal apparatus ? Explain the structure of stomata with a labelled diagram.

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7. Name the three basic tissue systems in the flowering plants. Give the tissue names under each system.

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8. How is the study plant anatomy useful to us ?

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9. What is periderm ? How does periderm formation take place in the dicot stems ?

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10. Decribe the internal structure of a dorsiventral leaf with the help of labelled diagrams.

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Section E Solution Of Ncert Exemplar Multiple Choice Questions

1. A transverse section of stem is stained first with safranin and then with fast green following the usual schedule of double staining for the preparation of a permanent slide. What would be the colour of the stained xylem and phloem ?

(A) Red and green

(B) Green and red

(C) Orange and purple

(D) Purple and orange

A. Red and green

B. Green and red

C. Orange and yellow

D. Purple and orange

Answer: A

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2. Match the following columns :

A. (a - i), (b - iii), (c - v), (d - ii), (e - iv)

B. (a - iii), (b - i), (c - ii), (d - v), (e - iv)

C. (a - ii), (b - iv), (c - v), (d - i), (e - iii)

D. (a - v), (b - iv), (c - iii), (d - ii), (e - i)

Answer: B

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3. Match the following columns :

A. (a - iii), (b - iv), (c - i), (d - ii)

B. (a - i), (b - ii), (c - iii), (d - iv)

C. (a - iii), (b - ii), (c - iv), (d - i)

D. (a - iii), (b - ii), (c - i), (d - iv)

Answer: A

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4. Identify the tissue system from among the following.

(A) Parenchyma

(B) Xylem

(C) Epidermis

(D) Phloem

A. Parenchyma

B. Xylem

C. Epidermis

D. Phloem

Answer: C

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5. Cells of this tissue are living and show angular wall thickening. They also provide mechanical support. The tissue is

(A) Xylem

(B) Sclerenchyma

(C) Collenchyma

(D) Epidermis

A. Xylem

B. Sclerenchyma

C. Collenchyma

D. Epidermis

Answer: C

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6. Epiblema of roots is equivalent to

(A) Pericycle

(B) Endodermis

(C) Epidermis

(D) Stele

A. Pericycle

B. Endodermis

C. Epidermis

D. Stele

Answer: C

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7. A conjoint and open vascular bundle will be observed in the transverse section of

(A) Monocot root

(B) Monocot stem

(C) Dicot stem

(D) dicot root

A. Monocot root

B. Monocot stem

C. Dicot stem

D. Dicot root

Answer: D

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8. Interfascicualr cambium and cork cambium are formed due to

A. Cell division

B. Cell differentiation

C. Cell dedifferentiation

D. Redifferentiation

Answer: C

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9. Phellogen and phellem respectively denote

(A) Cork and cork cambium

(B) Cork cambium and cork

(C) Secondary cortex and cork

(D) Cork and secondary cortex

A. Cork and cork cambium

B. Cork cambium and cork

C. Secondary cortex and cork

D. Cork and secondary cortex

Answer: B

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10. In which of the following pairs of parts of a flowering plant is epidermis absent ?

(A) Root tip and shoot tip

(B) Shoot bud and floral bud

(C) Ovule and seed

(D) Petiole and pedicel

A. Root tip and shoot tip

B. Shoot bud and floral bud

C. Ovule and seed

D. Petiole and pedicel

Answer: A

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11. How many shoot apical meristems are likely to be present in a twig of a plant possessing, 4 branches and 26 leaves ?

(A) 26

(B) 1

(C) 5

(D) 30

A. 26

B. 1

C. 5

D. 30

Answer: C

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12. A piece of wood having no vessels (trachea) must be belong to

(A) Teak

(B) Mango

(C) Pine

(D) Palm

A. Teak

B. Mango

C. Pine

D. Palm

Answer: C

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13. A plant tissue, when stained, showed the presence of hemicellulose and pectin in cell wall of its cells. The tissue represents

(A) Collenchyma

(B) Sclerenchyma

(C) Xylem

(D) Meristem

A. Collenchyma

B. Sclerenchyma

C. Xylem

D. Meristem

Answer: A

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14. Fibres are likely to be absent in

(A) Secondary phloem

(B) Secondary xylem

(C) primary phloem

(D) Leaves

A. Secondary phloem

B. Secondary xylem

C. Primary phloem

D. Leaves

Answer: D

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15. When we peel the skin of a potato tuber, we remove

(A) Periderm

(B) Epidermis

(C) Cuticle

(D) Sapwood

A. Periderm

B. Epidermis

C. Cuticle

D. Sapwood

Answer: A

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16. A vessel less piece of stem possessing prominent sieve tubes would belong to

(A) Pines

(B) Eucalyptus

(C) Grass

(D) Trochodendron

A. Pinus

B. Eucalyptus

C. Grass

D. Trochodendron

Answer: D

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17. Which one of the following cell types always divide by anticlinal cell division ?

(A) Fusiform initial cells

(B) Root cap

(C) Protoderm

(D) Phellogen

A. Fusiform initial cells

B. Root cap

C. Protoderm

D. Phellogen

Answer: D

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18. What is the fate of primary xylem in a dicot root showing extensive secondary growth?

(A) It is retained in the centre

(B) It gets crushed

(C) May or may not get crushed

(D) It gets surrounded by primary phloem

A. It is retained in the centre

B. It gets crushed

C. May or may not get crushed

D. It gets surrounded by primary phloem

Answer: A

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Section E Solution Of Ncert Exemplar Very Short Type Questions

1. Product of photosynthesis is transported from the leaves to various parts of the plants and stored in some cell before being utilised. What are the cells/tissues that store them ?

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2. Protoxylem is the first formed xylem. If the protoxylem lies next to phloem what kind of arrangement of xylem would you call it ?

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3. What is the function of phloem parenchyma ?

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4. What is present on the surface of the leaves which helps the plant prevent loss of water but is absent in roots ?

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5. What is the epidermal cell modification in plants which prevents water loss?

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6. What part of the plant would show the following:

(a) Radial vascular bundle

(b) Polyarch xylem

(c) Well developed pith

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7. What are the cells that make the leaves curl in plants during water stress?

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8. What constitutes the cambial ring?

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9. Give one basic functional difference between phellogen and phelloderm.

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10. Arrange the following in the sequence you would find them in a plant starting from the periphery-phellem, phellogen, phelloderm.

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11. If one debarks a tree, what parts of the plant is being removed ?

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12. The cross-section of a plant material showed following features when viewed under the microscope.

(A) The vascular bundles were radially arranged

Four xylem strands with exarch condition protoxylem.

To which organ should it be assigned ?

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13. What do hardwood and softwood stand for?

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Section E Solution Of Ncert Exemplar Short Answer Type Questions

1. While eating peach or pear it is usually seen that some stone like structures get entangled in the teeth, what are these stone like structures called?

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2. What is the commercial source of cork? How is it formed in the plant?

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3. Below is a list of plant fibres. From which part of the plant these are obtained ?

(a) Coir (b) Hemp (c) Cotton (d) jute

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4. What are the characteristic differences found in the vascular tissue of gymnosperms and angiosperms ?

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5. Epidermal cells are often modified to perform specialised functions in plants. Name some of them and function they perform.

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6. The lawn grass (Cyandon dactylon) needs to be mowed frequently to prevent its overgrowth. Which tissue is responsible for its rapid growth?

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7. Plants require water for their survival. But when watered excessively, plants die. Discuss.

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8. A transverse section of the trunk of a tree shows concentric rings which are known as growth rings. How are these rings formed ? What is the significance of these rings?

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9. Trunks of some of the aged tree species appear to be composed of several fused trunks. Is it a physiological or anatomical abnormality ? Explain in detail.

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10. What is the difference between lenticels and stomata ?

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11. Write the precise function of

(a) Sieve tube

(b) Interfascicular cambium

(c) Collenchyma

(d) Aerenchyma

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12. The stomatal pore is guarded by two kidney shaped guard cells. Name the epidermal cells surrounding the guard cells. How does a guard cell differ from an epidermal cell ? Use a diagram to illustrate your answer.

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13. Point out the differences in the anatomy of leaf of peepal (Ficus religiosa) and maize (Zea

mays). Draw the diagrams and label the differences.

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14. Palm is a monocotyledonous plant, yet it increases in girth. Why and how ?

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Section E Solution Of Ncert Exemplar Long Answer Type Questions

1. The arrangement of ovules within the ovary is known as placentation. What does the term placenta refer to ? Draw various types of placentations in the flower as seen in T.S. and V.S.

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2. Deciduous plants shed their leaves during hot summer or in autumn. This process of shedding of leaves is called abscission. Apart from physiological changes, what anatomical

mechanism is involved in the abscission of leaves ?

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3. Is Pinus an evergreen tree ? Comment.

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4. Assume that a pencil box held in your hand, represents a plant cell. In how many possible

planes can it be cut ? Indicate these cuts with the help of line drawing.

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5. Each of the following terms has some anatomical significance. What do these terms mean? Explain with the help of line diagrams.

(A) Plasmadesmoses / Plasmodesmata

(B) Middle lamella

(C) Secondary wall

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6. Distinguish between the following:

(a) Exarch and endarch condition

(b) Stele and vascular bundle

(c) Protoxylem and metaxylem

(d) Interfascicular cambian and intrafascicular cambian

(e) Open and closed vascular bundles

(f) Stem hair and root hair

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Questions From Module Important Mcq For Neet

1. In what exarch vessel is seen ?

(A) Root

(B) Stem

(C) Leaf

(D) All of the above

A. Root

B. Stem

C. Leaf

D. All of the above

Answer:

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2. Due to development of what lenticels develop ?

(A) Vascular cambium

(B) Cortex

(C) Cork cambium

(D) Intercalary meristem tissue

A. Vascular cambium

B. Cortex

C. Cork cambium

D. Intercalry meristem tissue

Answer: A::B::C

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3. In what protostele is found ?

(A) Bryophytes

(B) Gymnosperms

(C) Pteridophytes

(D) Angiosperm

A. Bryophytes

B. Gymnosperms

C. Pteridophytes

D. Anglosperms

Answer: D

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4. Meristematic tissue located in vascular bundle is ..... .

(A) Cork

(B) Procambium

(C) Sub - cork

(D) Fascicular cambium

A. Cork

B. Procamblum

C. Sub-cork

D. Fascicular cambium

Answer: A::B::C

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5. Of what medullary rays made ?

(A) Fibres

(B) Tracheids

(C) Sclerenchyma cells

(D) Parenchyma cells

A. Fibres

B. Tracheids

C. Sclerenchyma cells

D. Parenchyma cells

Answer: A::C

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6. In which tissue food is stored ?

(A) Collenchyma tissue

(B) Parenchyma tissue

(C) Palisade tissue

(D) Sclerenchyma tissue

A. Collenchyma tissue

B. Parenchyma tissue

C. Palisade tissue

D. Sclerenchyma tissue

Answer: A::C

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Questions From Module Question Paper

1. Which tissue is responsible for primary growth ?

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2. Give examples of lateral merism tissue.

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3. Which type of depositions are seen in collenchymatous tissue ?

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4. Of which elements is xylem tissue of gymnospermic plant made ?

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5. Which type of stele is found in sunflower root ?

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6. How is periderm formed ?

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7. Describe vascular cambium responsible for secondary growth in detail.

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8. Write a note on the vascular Tissue system.

Watch Video Solution

9. Describe the stomata seen the dicotyledonous plants.

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10. What is meant by secondary growth ? Explain formation of cambial ring.

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