

| 740 | Plant | Dh | raiale | |
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INSTRUCTIONS TO CANDIDATES

(Use only blue/black ball-point pen in the space above and on both sides of the Answer Sheet)

- 1. Within 10 minutes of the issue of the Question Booklet, Please ensure that you have got the correct booklet and it contains all the pages in correct sequence and no page/question is missing. In case of faulty Question Booklet, bring it to the notice of the Superintendent/Invigilators immediately to obtain a fresh Question Booklet.
- 2. Do not bring any loose paper, written or blank, inside the Examination Hall except the Admit Card without its envelope.
- 3. A separate Answer Sheet is given. It should not be folded or mutilated. A second Answer Sheet shall not be provided.
- 4. Write your Roll Number and Serial Number of the Answer Sheet by pen in the space provided above.
- 5. On the front page of the Answer Sheet, write by pen your Roll Number in the space provided at the top, and by darkening the circles at the bottom. Also, wherever applicable, write the Ouestion Booklet Number and the Set Number in appropriate places.
- 6. No overwriting is allowed in the entries of Roll No., Question Booklet No. and Set No. (if any) on OMR sheet and Roll No. and OMR sheet No. on the Question Booklet.
- 7. Any changes in the aforesaid-entries is to be verified by the invigilator, otherwise it will be taken as unfair means.
- 8. This Booklet contains 40 multiple choice questions followed by 10 short answer questions. For each MCQ, you are to record the correct option on the Answer Sheet by darkening the appropriate circle in the corresponding row of the Answer Sheet, by pen as mentioned in the guidelines given on the first page of the Answer Sheet. For answering any five short Answer Questions use five Blank pages attached at the end of this Question Booklet.
- **9.** For each question, darken only one circle on the Answer Sheet. If you darken more than one circle or darken a circle partially, the answer will be treated as incorrect.
- 10. Note that the answer once filled in ink cannot be changed. If you do not wish to attempt a question, leave all the circles in the corresponding row blank (such question will be awarded zero marks).
- 11. For rough work, use the inner back page of the title cover and the blank page at the end of this Booklet.
- 12. Deposit both OMR Answer Sheet and Question Booklet at the end of the Test.
- 13. You are not permitted to leave the Examination Hall until the end of the Test.
- 14. If a candidate attempts to use any form of unfair means, he/she shall be liable to such punishment as the University may determine and impose on him/her.

Total No. of Printed Pages: 15

FOR ROUGH WORK

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Research Entrance Test - 2013

No. of Questions: 50

Time: 2 Hours

Note:

Full Marks: 200

 This Question Booklet contains 40 Multiple Choice Questions followed by 10 Short Answer Questions.

- (ii) Attempt as many MCQs as you can. Each MCQ carries 3 (Three) marks. 1 (One) mark will be deducted for each incorrect answer. Zero mark will be awarded for each unattempted question. If more than one alternative answers of MCQs seem to be approximate to the correct answer, choose the closest one.
- (iii) Answer only 5 Short Answer Questions. Each question carries 16 (Sixteen) marks and should be answered in 150-200 words. Blank 5 (Five) pages attached with this booklet shall only be used for the purpose. Answer each question on separate page, after writing Question No.

| Plan | t Physiology | *************************************** | | | | | Code No. : 7 |
|-------|-----------------------------|---|------------|-----------|----------------------|--------------------|--|
| 1. | One Horse Powe | er (HP) is e | xpressed | l in term | of watt wh | nich is | |
| | (1) 720 | (2) 786 | | | 746 | | None of these |
| 2. | Number of segm | nėnts presei | nt in inse | ect head | is: | | |
| | (1) Two | (2) For | | | Six | (4) | Seven |
| 3. | Deficiency symp | tom of sulp | hur firs | t appear | san: | | |
| | (1) Younger lea | | | 2000 | Older leav | ves | |
| | (3) Middle leave | es | | \$100 | None of th | | |
| 4. | Protein content i | n lentil is : | | | | | |
| | (1) 18% | (2) 25% | 6 | (3) | 16% | (4) | 20% |
| 5. | Demonstration s | howing ho | w to do | things is | called: | | 12 |
| | (1) Method dem | | | | Result der | nonstratio | n |
| | (3) Training | | | | Frontline | | |
| 6. | Dithane M-45 is a | · · | | | | | en e |
| | (1) Bactericide | | | (2) | Insecticide | | W |
| | (3) Fungicide | | | 900.9964 | Nematicid | | |
| 7 | 155 T | · · · · · · · · · · · · · · · · · · · | | (*) | rvemaneio | ie. | 0 |
| 7. | Jamunapari is a b | preed of: | | 921 | <u></u> - | | |
| | (1) Cow (3) Buffalo | | | Processor | Goat | | |
| | (5) Dunaio | | | (4) | None of th | ne above . | 20 |
| 8. | Select the correct | formula of | urea: | | 25 | a 19 ³⁰ | |
| | (1) H2NCO2NH | 2 | | (2) | HNCONH | | |
| | (3) H_2NCONH_2 | | | (4) | H ₄ NCONI | H_4 | |
| 9. | The measure of c | entral tende | ency is: | | | | |
| | (1) Median | • | | (2) | Mode | | |
| | (3) Mean | | | | All of the a | bove | |
| 10. | On which of the experiment? | ne followin | ng plan | | | | his classica |
| | (1) Gram | (2) Mai | ze | (3) | Pea | (4) I | ?ice |
| RET/1 | 3/Test B/749 | * 10 8 1 - 1000 110 110 | (2 | | - *** | (4/ 1 | NCE |
| | | | | | | | |

| 39 | N. | |
|------|---|---|
| | | and the in most through ' |
| | The maximum amount of water | r enter in root uitough. |
| | (1) root cap | ¥ |
| | (2) root tip | |
| | (3) root hair zone | |
| | (4) root elongation zone | |
| 12. | Which of the following portion per quanta of light? | of light spectrum contains the maximum energy |
| | (1) green | (2) violet |
| | (3) red | (4) infrared |
| 13. | energy is lost in the form of rac | et state of chlorophyll comes to ground state and diation, the phenomenon is termed as: |
| | (1) incandescence | (2) fluorescence |
| | (3) phosphorescence | (4) luminescence |
| 14. | The carbon reduction reactions | |
| | (1) grana | (2) mitochondria |
| 88 | (3) stroma | (4) chloroplast membrane |
| 16 | The full form of the enzyme R | uBISCO is precisely known as : |
| 15. | (1) Ribulose-di-phosphate car | |
| | (2) Ribulose-1, 5-bi-phosphat | |
| | (3) Ribulose-1, 5-bisphosphat | |
| | (4) Ribulose-1, 5-bisphosphat | |
| | | |
| 16. | NADP glyceraldehyde-3-ph regulated by : | osphate dehydrogenase of Calvin Cycle is |
| | (1) dark | (2) light |
| | (3) both light and dark | (4) phytochrome |
| RET/ | 13/Test B/749 | (3) P.T.O. |
| 10 | 2000000 | |
| | | * |
| | | * |
| | | |
| | | 200 |

| 17. | M | alate and aspartate are carboxylation | pro | educts of the |
|-------|---------|--|------------|------------------------------------|
| | 1000 |) C3 Cycle | |) C2 Cycle |
| | (3 |) C4 Cycle | |) glycolysis |
| 40 | • | Adaminan . | | |
| 18. | | the Citric Acid Cycle, pyruvate is ox | idiz | ed : |
| | (1) | completely to CO ₂ | | 8 |
| | | completely to H ₂ O ₂ | | |
| | (3) | completely to CO ₂ and H ₂ O | | |
| | (4) | completely to fumaric acid | | p |
| 19. | Αι | ixin rapidly increases the extensibilit | v of | the: |
| 52 | | mitochondria | 38 | cell wall |
| | (3) | chloroplast *** | 10 00 | nucleus |
| 20. | Ev | trong alice discourse | | |
| £0. | vai | rieties of the same species is caused b | illy | dwarf plants resemble the tallest |
| | (1) | Exogenous IAA application | <i>y</i> • | |
| | (2) | N-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A | | |
| | (3) | week and the state of the state | | |
| | (4) | Exogenous IAA and kinetin applica | tion | |
| 21. | Mo | est abundant natural cytokinin is : | | |
| | (1) | indole-3-acetic acid | (2) | zeatin |
| | | kinetin | 505 X 50 | benzyladenine |
| | | | 3 2 | |
| 22. | | macteric is caused due to: | | |
| | | gibberellins | (2) | auxins |
| | (3) | cytokinins | (4) | ethylene |
| 23. | Wh | ich of the following is the most sensi | tive | plant process to maisture of the 2 |
| | (1) | Photosynthesis | | Cell enlargement |
| | (3) | Respiration | | Proline accumulation |
| RET/1 | 3/Te | st B/749 (4) | | |

| | | | | | | 3.5 |
|-----|---|--------------------|--------------|-------------------|----------|-------|
| 24. | Osmotic adjustment helps pl | ants in which of | f the follow | ing? | | |
| | (1) Turgor maintenance | | Water abso | | | |
| | (3) Water exclusion | (4) | Ion accum | ulation | | |
| 0E | Which of the following plan | ts is most fit for | survival ur | der moisture str | ess? | |
| 25. | | | C4 plants | 1 | | 39 |
| | (1) C3 plants (3) CAM plants | | Perennial | plants | | ž. |
| • | | ₩ ◎ | . 7 | | | |
| 26. | Formation of arenchyma in which of the following? | plants under w | vaterlogged | condition is ind | ucea by | |
| | (1) Ethylene | (2) | ABA | e se se | | * |
| | (3) Cytokinin | | Gibberelli | ns | | |
| | 8 7 • | | | | | el el |
| 27. | The element required for the | 20 | | 1 | | į. |
| | (1) Mn (2) Zn | (3) | Cu | (4) Cl | (94) | * |
| 28. | The element responsible for | regulating ston | natal move | ment in maize pla | ant is: | × |
| | (1) Na (2) K | | В | (4) Cl | * | |
| | 7 species to the | 9.19 | * | id, este , | | 8 |
| 29. | Deficiency symptoms of an | | W 2 | 200 | | |
| | (1) upper parts of the plan | DRX 15 15 15 15 | 5.1 <u></u> | ts of the plants | | |
| | (3) younger parts of the pl | | 0.00 | ts of the plants | | |
| 30. | Which of the following eler | nent is involved | in the tran | sport of sugar in | plants? | |
| | (1) Zn (2) B | (3) |) Fe | (4) Cu | | 7 |
| _1 | 1:1-(1) | o following is t | he unit of w | vater potential? | | |
| 31. | | | N Post | 530 521 301 47 | | |
| | (1) Atmosphere | |) Pound | ens of " - | | |
| | (3) Mega Pascal | (5) | , | <u>.</u> | P. T. O. | * |
| KE! | /13/Test B/749 | \ - / | | | | |

| At sy | t initial growth s mptoms of the fo | tage llow: | , the Mo | o defic | cienc | су | symptom reser | nbles to | deficienc | y |
|--|--|--|--|--|---|---|---|--|---|---|
| (1) | N | (2) | P | 8 | (3 |) | K | (4) Ca | | |
| Re | eduction of N ₂ up | to th | e level c | of NH ₃ | by 1 | ni | trogenasė requir | es: | | |
| | | | | | | | | | | |
| (3) | 8 electrons | | 10 | | | | | | | |
| Sta | arch biosynthesis | in pl | ants tak | es plac | e in | : | | | | |
| (1) | cytoplasm | | | | (2) |) | mitochondria | | | |
| (3) | chloroplast | | | · 20 | (4) |) | endoplasmic ret | iculum | | |
| uay | y length is more | e tna | an 18 h | ours. | whi | le | plant 'B' faile | t 'A' flo to flov | wers wher ver at this | n s |
| (1) | 'A' and 'B' both l | ong | day plar | nts | | | | | | |
| (2) | 'A' short day pla | nt ar | nd 'B' lor | ng day | pla | nt | | | | |
| (3) | 'A' and 'B' both a | re sl | nort day | plants | 3 | | | | | |
| (4) | 'A' long day plar | ıt an | d 'B' sho | rt day | plai | nt | | | | |
| Wh det | ich of the morp ermine net assimi | oho- _l latio | physiolo n rate (N | gical NAR) ? | para | n | neters of plants | are re | equired to |) |
| (1) | Time duration ar | nd to | tal leaf a | area | | | ell. | | | |
| (2) | Total leaf area ar | d to | tal dry v | veight | | | | | | |
| (3) Time duration and total dry weight | | | | | | | | | | |
| (4) | Time duration, to | otal l | eaf area | and to | otal c | lr, | y weight | | 8 | |
| Lea: tern | f area index at v | vhic | h rate o | f dry | mat | te | r production is | the ma | iximum is | |
| (1) | Ceiling leaf area i | nde | x | | (2) | C | Optimum leaf are | ea index | | |
| (3) | Net leaf area inde | ex | | | | | | * (33.20) | | |
| 3/Tes | st B/749 | | | (6) | | | | | | |
| | (1) (3) (4) (4) (4) (4) (5) (4) (6) (7) (8) (1) (1) (1) (2) (3) (4) (4) (4) (5) (4) (6) (7) (8) (9) (1) (1) (1) (2) (3) (4) (4) (4) (5) (6) (6) (7) (8) (9) (9) (1) (1) (1) (2) (3) (4) (4) (4) (5) (6) (6) (7) (8) (9) (9) (9) (9) (1) (1) (1) (2) (3) (4) (4) (4) (5) (6) (6) (7) (7) (8) (8) (9) (9) (9) (9) (9) (9) (9) (9) (9) (9 | symptoms of the fol (1) N Reduction of N ₂ up (1) 4 electrons (3) 8 electrons Starch biosynthesis in (1) cytoplasm (3) chloroplast Critical photoperiod day length is more photoperiod. Plants (1) 'A' and 'B' both 1 (2) 'A' short day plants (3) 'A' and 'B' both and 'B' both and 'A' long day plants Which of the more determine net assiming (1) Time duration and (2) Total leaf area and (3) Time duration ard (4) Time duration, to the leaf area index at we termed as: (1) Ceiling leaf area in the leaf area index at we termed as: | symptoms of the follow: (1) N (2) Reduction of N ₂ up to the (1) 4 electrons (3) 8 electrons Starch biosynthesis in ple (1) cytoplasm (3) chloroplast Critical photoperiods of day length is more that photoperiod. Plants 'A' at an 'B' both long (2) 'A' short day plant an (3) 'A' and 'B' both are slepton and 'B' both are slepton and 'A' long day plant an 'A' long day plant an 'Which of the morphodetermine net assimilation (1) Time duration and to (2) Total leaf area and to (3) Time duration, total 1. Leaf area index at which termed as: (1) Ceiling leaf area index (3) Net leaf area index (3) Net leaf area index | symptoms of the following elem (1) N (2) P Reduction of N ₂ up to the level of (1) 4 electrons (3) 8 electrons Starch biosynthesis in plants take (1) cytoplasm (3) chloroplast Critical photoperiods of plants 'A' and 'B' more than 18 hephotoperiod. Plants 'A' and 'B' more than 18 hephotoperiod. Plants 'A' and 'B' more than 18 hephotoperiod. 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Plants 'A' and 'B' may be (1) 'A' and 'B' both long day plants (2) 'A' short day plant and 'B' long day (3) 'A' and 'B' both are short day plants (4) 'A' long day plant and 'B' short day Which of the morpho-physiological determine net assimilation rate (NAR) at (1) Time duration and total leaf area (2) Total leaf area and total dry weight (3) Time duration, total leaf area and total dry weight (4) Time duration, total leaf area and total dry weight (5) Ceiling leaf area index (6) Net leaf area index | symptoms of the following element: (1) N (2) P (3) Reduction of N ₂ up to the level of NH ₃ by the second of the level of NH ₃ by the second of N ₂ up to the level of NH ₃ by the second of N ₂ up to the level of NH ₃ by the second of N ₂ up to the level of NH ₃ by the second of N ₂ up to the level of NH ₃ by the second of N ₂ up to the level of NH ₃ by the second of N ₃ the second of N ₄ and | symptoms of the following element: (1) N (2) P (3) Reduction of N ₂ up to the level of NH ₃ by ni (1) 4 electrons (2) (3) 8 electrons (4) Starch biosynthesis in plants takes place in: (1) cytoplasm (2) (3) chloroplast (4) Critical photoperiods of plants 'A' and 'B' are day length is more than 18 hours, while photoperiod. Plants 'A' and 'B' may be classiff (1) 'A' and 'B' both long day plants (2) 'A' short day plant and 'B' long day plants (3) 'A' and 'B' both are short day plants (4) 'A' long day plant and 'B' short day plant Which of the morpho-physiological parametermine net assimilation rate (NAR)? (1) Time duration and total leaf area (2) Total leaf area and total dry weight (3) Time duration, total leaf area and total dry Leaf area index at which rate of dry matter termed as: (1) Ceiling leaf area index (2) Ceiling leaf area index (4) E | symptoms of the following element: (1) N (2) P (3) K Reduction of N ₂ up to the level of NH ₃ by nitrogenase requir (1) 4 electrons (2) 6 electrons (3) 8 electrons (4) 10 electrons Starch biosynthesis in plants takes place in: (1) cytoplasm (2) mitochondria (3) chloroplast (4) endoplasmic ret Critical photoperiods of plants 'A' and 'B' are 18 hours. Plant day length is more than 18 hours, while plant 'B' fails photoperiod. Plants 'A' and 'B' may be classified as: (1) 'A' and 'B' both long day plants (2) 'A' short day plant and 'B' long day plant (3) 'A' and 'B' both are short day plants (4) 'A' long day plant and 'B' short day plant Which of the morpho-physiological parameters of plants determine net assimilation rate (NAR)? (1) Time duration and total leaf area (2) Total leaf area and total dry weight (3) Time duration, total leaf area and total dry weight (4) Time duration, total leaf area and total dry weight (5) Time duration and total dry weight (6) Time duration and total dry weight (7) Time duration and total dry weight (8) Time duration and total dry weight (9) Time duration and total dry weight (10) Time duration and total dry weight (21) Time duration and total dry weight (22) Cptimum leaf area termed as: (33) Net leaf area index (44) Extinction point | symptoms of the following element: (1) N (2) P (3) K (4) Ca Reduction of N ₂ up to the level of NH ₃ by nitrogenase requires: (1) 4 electrons (2) 6 electrons (3) 8 electrons (4) 10 electrons Starch biosynthesis in plants takes place in: (1) cytoplasm (2) mitochondria (3) chloroplast (4) endoplasmic reticulum Critical photoperiods of plants 'A' and 'B' are 18 hours. Plant 'A' floday length is more than 18 hours, while plant 'B' fails to flow photoperiod. Plants 'A' and 'B' may be classified as: (1) 'A' and 'B' both long day plants (2) 'A' short day plant and 'B' long day plant (3) 'A' and 'B' both are short day plants (4) 'A' long day plant and 'B' short day plant Which of the morpho-physiological parameters of plants are redetermine net assimilation rate (NAR)? (1) Time duration and total leaf area (2) Total leaf area and total dry weight (3) Time duration, total leaf area and total dry weight Leaf area index at which rate of dry matter production is the mattermed as: (1) Ceiling leaf area index (2) Optimum leaf area index (3) Net leaf area index (4) Extinction point | symptoms of the following element: (1) N (2) P (3) K (4) Ca Reduction of N ₂ up to the level of NH ₃ by nitrogenase requires: (1) 4 electrons (2) 6 electrons (3) 8 electrons (4) 10 electrons Starch biosynthesis in plants takes place in: (1) cytoplasm (2) mitochondria (3) chloroplast (4) endoplasmic reticulum Critical photoperiods of plants 'A' and 'B' are 18 hours. Plant 'A' flowers where day length is more than 18 hours, while plant 'B' fails to flower at this photoperiod. Plants 'A' and 'B' may be classified as: (1) 'A' and 'B' both long day plants (2) 'A' short day plant and 'B' long day plant (3) 'A' and 'B' both are short day plants (4) 'A' long day plant and 'B' short day plant Which of the morpho-physiological parameters of plants are required to determine net assimilation rate (NAR)? (1) Time duration and total leaf area (2) Total leaf area and total dry weight (3) Time duration, total leaf area and total dry weight Leaf area index at which rate of dry matter production is the maximum is termed as: (1) Ceiling leaf area index (2) Optimum leaf area index (3) Net leaf area index (4) Extinction point |

| | | | 18 | | | | |
|--|---|--------|--------------------------------------|--|--|--|--|
| 38. | A major commercial use of gibberellins i | is to | increase the stalk length of: | | | | |
| | (1) seedless guava | (2) | seedless grapes | | | | |
| | (3) seedless fruits | (4) | seedless banana | | | | |
| | Kinetin was discovered as a breakdown | nro | duct of: | | | | |
| 39. | | | protein | | | | |
| | (1) RNA | | | | | | |
| | (3) DNA | (4) | chlorophyll | | | | |
| 40. | Leaf senescence is delayed by: | | | | | | |
| | (1) abscisic acid | (2) | ethylene | | | | |
| | (3) paclobutrazol | (4) | cytokinen | | | | |
| Attempt any five questions. Write answer in 150-200 words. Each question carries 16 marks. Answer each question on separate page, after writing Question Number. | | | | | | | |
| 1. | Define osmosis. How does it differ from | n im | bibition? | | | | |
| 2. | Define transpiration. Differentiate between transpiration and guttation. | | | | | | |
| 3. | Explain the mechanism of geotropic response in plants. | | | | | | |
| 4. | Discuss briefly the mechanism of action of abscisic acid. | | | | | | |
| 5. | Define accumulation ratio. What do you understand by symport and antiport of ions? | | | | | | |
| 6. | What is carbon sequestration? Illustrate the term biodiversity and describe briefly its significance. | | | | | | |
| 7. | | | | | | | |
| 8 | Write the reactions of C4 pathway, wh | nich | occurs in the cytoplasm of the cell. | | | | |
| 9 | | | | | | | |
| 10 | List greenhouse gases and write in bri | ief tł | ne causes of global warming: | | | | |
| | | | | | | | |

| Roll | No. | : | |
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FOR ROUGH WORK