GUJARAT AGRICULTURAL UNIVERSITIES

1. Anand Agricultural University
2. Junagadh Agricultural University
3. Navsari Agricultural University
4. S. D. Agricultural University

Second Semester End Theory Examination of B.Sc. (Hons.) Horticulture (Regular) June-2018
Course No. : NRMH 2.4 (1+1) Title of Course : Agro meteorology and Climate Change
Date : 18/06/2018, Monday Time: 9.30 to 11.30 hrs. Total Marks : 50

Note: Write all answers in given Answer Book only.

Q.1 (A) Write the correct option A/B/C/D in CAPITAL LETTERS ONLY
1. The layer is known as “The seat of photochemical reactions”.
   (A) Stratosphere (B) Troposphere (C) Mesosphere (D) Thermosphere
2. The height of Cirrus cloud is ranging from
   (A) 2.5 to 7.0 km (B) 7.0 to 12 km (C) 0 to 2.5 km (D) 12 to 20 km
3. The earth is nearest to the sun is known as
   (A) Aphelion (B) Equinoxes (C) Perihelion (D) Solstice
4. The tertiary or local atmospheric circulation is
   (A) Polar Easterlies (B) Westerlies (C) Cyclone (D) Sea breeze
5. The earth spins on its axis at a speed of about
   (A) 1800 km/hr (B) 1700 km/hr (C) 1600 km/hr (D) 1500 km/hr
6. The base temperature (°C) for wheat crop is
   (A) 1.0 to 2.0 (B) 3.0 to 4.5 (C) 10.0 to 12.0 (D) 8.0 to 10.0
7. This gas has major role in global warming
   (A) Water vapour (B) Carbon dioxide (C) Nitrogen (D) Methane
8. The downward movement of air is observed under
   (A) Stable (B) Unstable (C) Neutral (D) None of these
   (B) Define atmosphere and give the importance of atmosphere.
   (C) What do you mean by lapse rate? Discuss about stable, unstable and neutral
   conditions of the atmosphere.

(PTO)
Q.2 (A) State whether the following sentences are True or False. (4.0)

1. The 0 okta denotes clear sky.
2. The lithosphere is the layer of the atmosphere.
3. The longitude for equator is 0°.
4. The trade winds are also known as tropical winds.
5. The convectional precipitation is occurred in temperate belt.
6. The dew is the form of precipitation.
7. Generally, cyclones are developed on sea surface.
8. The winter solstice in Northern Hemisphere (NH) falls on 21st June.

(B) Define heat unit and describe different types of heat indices with equations. (5.0)

(C) What do you mean by precipitation? Explain different forms of precipitation. (4.0)

Q.3 (A) Give full form of the following (3.0)
1. IMD  
2. RMC  
3. WMO  
4. SALR  
5. GMT  
6. NCA

(B) What do you mean by weather forecasting? Describe different types of weather forecasting. (5.0)

(C) Write the difference between Troposphere and Stratosphere (4.0)

Q.4 (A) Fill in the blanks with appropriate words. (4.0)

1. The permanent drought is the common feature in _______ region.
2. The value of dry adiabatic lapse rate (DALR) is _______ °C/km.
3. The different seasons are formed due to earth’s _______.
4. The cyclonic precipitation takes place in _______ region.
5. The equatorial region is an area of _______ pressure.
6. The conversion of water vapour into solid form is known as _______.
7. The movement of earth on its own axis is known as _______.
8. The _______ force generates due to rotation of the earth

(B) Define condensation and explain the different conditions for the process of condensation (4.0)

(C) Define climate change and discuss about impact of climate change on Indian horticulture. (5.0)

OR

Define drought and give the classification of agricultural drought.

****
Q.1(A) **Fill in the blanks using proper word(s).** (10.00)

(Inbreeding depression, Phenotype, Self-pollinated crop, seed, F₁, 50%, Pollination, Hybridization, Entomophily, Anemophily, Gametocide, Non-recurrent parent, Test cross, Top cross, F₂, Endosperm, Thomas Fairchild, Goulden, B line, R line, Cross-pollinated crop, Heterobeltiosis, Cleistogamy)

1. The cross of F₁ with homozygous recessive parent is ________.
2. The first artificial plant hybrid was developed by __________.
3. Heterosis over better parent is known as __________.
4. Pollination and fertilization in an unopened flower bud is called as ________.
5. With every generation of selfing, heterozygosity is reduced by ________.
6. A crop showing less than 5% cross-pollination is considered as ________.
7. In CGMS system, 'A' line is maintained by __________.
8. Single seed descent method is given by ________.
9. Genetic variability can be created through ________.
10. Mass selection always based on ________.
11. Heterosis confined to ________ generation.
12. Maximum variability is observed in ________ generation.
13. The triple fusion leads to development of ________.
14. Chemical which induce temporary male sterility is called ________.
15. Pollination by insects is known as ________.
16. Pollination by winds is known as ________.
17. \( \frac{F_1-F_2}{F_1} \times 100 \) is the formula of ________.
18. Crossing a single inbred with an open-pollinated variety is termed as ________.
19. Transfer of pollens from anther to stigma is known as ________.
20. Donor parent is also known as ________._

(B) **Match the following using appropriate answers from Group B** (5.00)

**GROUP I**

1. Gene for Gene hypothesis
2. Father of Hybrid cotton
3. Dwarfing gene in wheat
4. Pure line theory
5. Progeny test
6. F₁ (Aa) X F₁ (Aa)
7. F₁ (Aa) X F₁ (Bb)
8. Heterosis term
9. NBPGR
10. CIMMYT

**GROUP II**

a. Vilmorin
b. Johansson
c. Flor (1956)
d. Selfing
e. Double cross
f. Shull (1914)
g. New Delhi
h. Mexico
i. C. T. Patel
j. Norin-10

(ANSWERS)
Q.2 (A) Define/Explain of the followings (Any TEN)  
1. Mutation breeding  
2. Plant Breeding  
3. R-line  
4. Pureline  
5. Progeny test  
6. Hybridization  
7. GCA  
8. Quarantine  
9. Molecular markers  
10. Gene pyramiding  
11. Disease  
12. Hardy-Weinberg Law  
13. IPR  
14. Stress  
(B) What is backcross? Describe the procedure to transfer dominant gene governing resistance into popular cultivated variety through backcross breeding.  
OR  
Define Sporogenesis. Describe briefly the process of Micro and Megagametogenesis in plants with suitable diagrams.

Q.3 (A) Differentiate between the followings (Any FOUR)  
1. Inter-varietal hybridization Vs. Inter-specific hybridization  
2. Synthetic variety Vs. Composite Variety  
3. Allogamy Vs. Autogamy  
4. Bulk method Vs. Pedigree method  
5. Autopolyploidy Vs. Allopolyploidy  
6. Primary Introduction Vs. Secondary Introduction  
(B) Write short notes (Any THREE)  
1. Male sterility  
2. Reciprocal recurrent selection  
3. Self incompatibility  
4. Clonal selection  

Q.4 (A) Do as directed (Any SIX)  
1. Enlist the mechanisms for disease resistance.  
2. Enlist the various DNA markers.  
3. Enlist the methods which are used for handling a segregating population.  
4. Enlist the center of origin given by Vavilov.  
5. Enlist the mechanisms which promoting cross pollination.  
6. List out the objectives of plant breeding.  
7. Enlist the mechanisms for insect resistance.  
8. Briefly explained the achievements of plant breeding.  
9. Enlist the different types of heterosis with its formula.  
(B) Give scientific reasons for the following (Any SIX)  
1. Plant breeding is an art, a science and a technology.  
2. Cross-pollinated crops are highly heterozygous.  
3. Papaya is a cross-pollinated crop.  
4. Genetic variability is necessary for plant breeders.  
5. Use of fresh seed is must in commercial cultivation of a hybrid variety.  
6. Triploids are always sterile.  
7. Plant Introduction is necessary for plant breeders.  
8. CMS system is only utilized in vegetatively propagated crops.

***************
Q. 1(a) State whether following statements are true (T) or false (F) (any ten). (5)

i. Statistics directly deals with qualitative variables.
ii. Continuous variable can take values only in whole numbers.
iii. Data collected by the investigator himself for the purpose of a specific inquiry or study is known as primary data.
iv. Standard deviation of a series 7,7,7,7 and 7 is zero.
v. Probability of impossible event is one.
vi. Sampling error occurs in sample survey only.
vii. The value of $\chi^2$ ranges from $-\infty$ to $+\infty$.
viii. Replication gives the estimate of experimental error.
ix. $\mu + \sigma$ covers 95.44% of the area in normal distribution.
x. When the mid points of the top of the adjacent bars of histogram are joined by straight lines is known as frequency curve.
xi. AVERAGE function is used to find out mode in MS-Excel.

Q. 1(b) Write appropriate answer from given choices. (5)

i. The error committed by rejecting true null hypothesis is:
   (a) Type-I error  (b) Type-II error
   (c) Both a & b  (d) None of these

ii. Median is ______ type of average.
    (a) Algebraic  (b) Positional
    (c) Commercial  (d) None of these

iii. If 'S' is standard deviation and n is the number of observations, S.E. of mean is
    (a) $S/\sqrt{n}$  (b) $\sqrt{S/\sqrt{n}}$
    (c) $S/\sqrt{n}$  (d) $S/n$

iv. Error d.f. in CRD is:
    (a) n-1  (b) t-1
    (c) n-t  (d) None of these

v. If 25,34 and 43 are the mid-class values of classes then, the first class is:
   (a) 25-34  (b) 20.5-29.5
   (c) 24.5-34.5  (d) None of these

vi. The errors other than sampling errors are called:
    (a) Formula error  (b) Planning error
    (c) Non-sampling error  (d) None of these

vii. If $b_{xy} = 2.7$ and $b_{xy} = 0.3$, then the correlation coefficient $r =$
     (a) 0.81  (b) 0.09
     (c) 0.90  (d) None of the above

viii. Father of statistics is:
      (a) Bowley  (b) Boddington
      (c) R. A. Fisher  (d) Anderson
ix. In Poisson distribution the value of mean = 25, the value of variance will be
(a) 5  (b) 25  (c) 125  (d) 625

x. In a 2 x 2 contingency table R1=100, C1=32, C2=128; the expected frequency E22 will be
(a) 48  (b) 60  (c) 160  (d) 32

Q.1 (c) Match A and B group

<table>
<thead>
<tr>
<th>A group</th>
<th>B group</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Parameters</td>
<td>A. Maximum frequencies</td>
</tr>
<tr>
<td>2. Mode</td>
<td>B. Reduce experimental error</td>
</tr>
<tr>
<td>3. James Bernoulli</td>
<td>C. H0: μd = 0</td>
</tr>
<tr>
<td>4. Chronological classification</td>
<td>D. Upper Limit</td>
</tr>
<tr>
<td>5. Local control</td>
<td>E. 0 to 1</td>
</tr>
<tr>
<td>6. Color of flower</td>
<td>F. Constant calculated from population</td>
</tr>
<tr>
<td>7. Less than Ogive</td>
<td>G. Constant calculated from sample</td>
</tr>
<tr>
<td>8. ( \sum (X_i - 20) = 0 )</td>
<td>H. Qualitative variable</td>
</tr>
<tr>
<td>9. Paired t test</td>
<td>I. Lower limit</td>
</tr>
<tr>
<td>10. Probability</td>
<td>J. Binomial distribution</td>
</tr>
</tbody>
</table>

Q.1 (d) Define/Explain following terms (any five):

i. Degrees of freedom
ii. Experimental Unit
iii. Coefficient of variation
iv. Class interval
v. Statistics
vi. Sampling
vii. Correlation coefficient

Q.2 Differentiate the following (any five):

i. Exclusive V/s Inclusive method of data classification
ii. Qualitative V/s Quantitative character
iii. Correlation V/s Regression
iv. Split plot V/s Strip plot design
v. Sample survey V/s Census survey
vi. Discrete V/s Continuous variable
vii. Small sample V/s Large sample test

Q.3 Write short notes (any four):

i. Types of correlation with example of each
ii. Completely Randomized Design with its layout
iii. Factorial experiments with simple, main and interaction effects
iv. Importance of statistics
v. Types of population with example of each
vi. Properties of chi square distribution

Q.4 Answer in detail (any two):

i. Mention conditions for application of t-test and write all steps needed to test paired t-test.
ii. Give ANOVA structure for the experiment conducted in LSD with 6 treatments. Give formulae to estimate S.Em., C.D. and C.V. %.
iii. Define probability. Explain the different laws of probability.
iv. What is dispersion? Write all the formulae for grouped and ungrouped data of ideal measure of dispersion.
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Second Semester B Sc (Hons) Horticulture (Regular) End Examination - 2018
SSC.2.5: Communication Skills and Personality Development

Date: 23.06.2018
Day: Saturday

NOTE: For objective questions, write only Answers in the Answer Sheet.

Q-1 (A) Fill in the blanks with the most appropriate alternatives: 5.0

(1) He is always grumbling ________ something or other. (with, at, from, of)
(2) He is heir ________ the throne. (of, to, off, at)
(3) He fell ________ the ladder. (of, out, off, from)
(4) I will be indebted ________ you for life. (at, to, from, with)
(5) He is guilty ________ theft. (with, of, off, from)
(6) Don’t look down ________ the poor. (at, with, upon, to)
(7) I was greatly moved ________ their plight. (by, with, at, of)
(8) She broke ________ in the middle of her speech. (up, in, down, off)
(9) He has been working here ________ three years now. (since, for, from, before)
(10) I saw him two months ________. (ago, before, for, since)

Q-1 (B) Write the appropriate word given in brackets: 5.0

(1) Surat is situated on the bank of ________ Tapi. (a, an, the)
(2) There is an apple ________ the table. (on, above, over)
(3) You may look at him ________ don’t look too long. (and, but, or)
(4) Is there ________ juice in the pot? (some, any, more)
(5) There were 50 pupils in the class. ________ wore a uniform. (Each, Every, All)
(6) There isn’t ________ oil in the jar. (many, much, some)
(7) There are clouds in the sky. It ________ rain now. (can, may, will)
(8) Those boys are reading ________ books. (there, their, theirs)
(9) Find someone ________ we can give these assignments. (who, whom, whose)
(10) We must only believe ________ we see through our eyes. (what, as, that)

Q-1 (C) Fill in the blanks with appropriate form of verbs: 5.0

(1) Look, they ________ cricket on the playground. (play)
(2) The irregular students ________ themselves now. (curse)
(3) Watch carefully, how that animal ________ on the road. (move)
(4) I have just read the news that BJP ________ the assembly election. (win)
(5) SSC Examination ________ by GSEB every year. (conduct)
(6) What has ________ you from doing your home work? (prevent)
(7) My father ________ just ________ back from office. (come)
(8) She will not come today in the class as she ________ the train. (miss)
(9) Swamiji ________ just ________ his lecture on the Gita. (finish)
(10) Why are you talking? ________ you ________ all the exercises? (write)
Q-2 (A) Read the following passage and answer the questions:  

Books are of different kinds. Each kind has its own peculiar pleasure. Reading creative literature provides not only diversion, but also a deep insight into life and human character. Literature acquaints us with a large number of things and situations of which we have no direct experience. The experience gained through literature widens our outlook, broadens our sympathies and enlarges our mental horizon. Thus it makes us better human beings. Good novels, plays and poems do another service to us. They enable us to face life cheerfully and courageously. They teach us acceptance of life. Even popular fiction is not without its pleasure. It gives us at least a temporary escape from the problems of life.

Reading of serious books like those on philosophy, psychology, sociology, political science, etc. has joys of its own. Such books increase our knowledge, sharpen our intellect and enable us to think for ourselves. Books on history take us into the past and prove to be useful in many ways. A student if history learns not only from the achievements but also from the failures of the great men and rulers of bygone ages.

Reading is, thus, helpful to man in many ways. This fact should not, however, blind us to the disadvantages of reading, too much reading in particular. A man who reads too much is somehow cut off from real life. He loses the pleasure of life in pursuing the pleasures of reading. It is important to remember that books cannot be a substitute for life. Let us, therefore, use them only as aids to a good and pleasant life.

Questions:

(1) How should books be used?
(2) Describe the advantage of literary experience.
(3) What is the advantage of reading history books?
(4) Are there disadvantages of reading books?
(5) Give a suitable title to the passage.

Q-2 (B) Write an essay on any one of the following topics:  

1 The Role of Youth in the Development of Agriculture in India
2 Youth and Internet
3 Climate Change – the Greatest Challenge

Q-3 (A) Write a Resume with Cover Letter to the H R Manager, Mapro Food Industries, Mahabaleshwar for the post of Sales Representative.

Q-3 (B) Write a letter to your friend describing him the celebration of Annual Day of your college.

Q.4 Answer the following questions: (Any Five)

1 Define the terms Soft Skills and Hard Skills?
2 Why do we need to develop Soft Skills?
3 Enlist some proficiencies that are included in Soft Skills.
4 What is Debate?
5 What is Resume? Name the types of Resume.
6 What is the difference between a CV and a Resume?
7 What is Group Discussion? Why are Group Discussions held?

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Second Semester B.Sc.(Hons.) Horticulture (Regular) End Examination - 2017-18
BSc 2.4: Introductory Crop Physiology (1+1)

Date: 19/06/2018
Day: Tuesday
Time: 9.30 to 11.30 hrs
Marks: 50.00

Q: 1  (A) Define/explain the followings: (Any Six)  
1. Red drop  
2. Field capacity  
3. Guttation  
4. Micro elements  
5. Drought escape  
6. Anaerobic respiration

(B) Differentiate the followings: (Any Four)  
1. Transpiration and Evaporation  
2. Photosynthesis and Respiration  
3. Osmosis and Diffusion  
4. Cyclic photophosphorylation and Non-cyclic photophosphorylation  
5. C4 plants and C3 plants

Q: 2  (A) Fill in the blanks with appropriate word given in the bracket.  
1. ______ is the best example of antitranspirants. (ABA, CO₂, O₂).
2. Water submerged plants doses not waste water by transpiration as they have ______ type of stomatal distribution. (Oat, Potato, Potamogeton).
3. Endodermis cells have a particular type of radial thickening of ______ in cell wall. (Suberin, Starch, Pectin).
4. Absorption of water against concentration gradient utilizing respiratory energy is explained by ______ theory. (Osmotic, Non osmotic, Passive).
5. Cuticle is a layer of wax like covering on the epidermis of the leaves and herbaceous stem by which ______ per cent of transpiration may take place. (80-90, 1-2, Up to 20).
6. Actual pressure which develop in solution when it is separated from pure solvent by means of semi permeable membrane is called ______ pressure. (Diffusion, Osmotic, Imbibition).
7. The best example of CAM plant is ______. (Sugarcane, Mango, Pineapple).
8. During Kreb’s cycle oxaloacetate and Acetyl CoA are the initial substrate while end product is ______. (Malate, Oxaloacetate, Citrate).
9. In C4 plants, a special type of leaf anatomy which is one of the reason for the absence of ______. (Photosynthesis, Respiration, Photorespiration).
10. For formation of one molecule of hexose sugar, Calvin cycle runs at ______ times. (one, three, six).

(B) Match the following:  
1. Stomata open during day time.  
2. One major cell containing chloroplast  
3. First stable product is four carbon compounds  
4. Have enzyme RuBisCO  
5. C3, C4 and CAM plants  
6. C4 and CAM plants  
7. C3 and C4 plants

P.T.O.
Q: 3 Do as directed. (Any Four)
1. Justify why transpiration is considered as necessary evil.
2. Explain water potential and its components.
3. Enlist various theories of ascent of sap and discuss most acceptable theory.
4. Enlist factors affecting rate of photosynthesis.
5. Enlist different types of plant stresses and write down the responses of plant to drought.
6. Define herbicide and enlist different types of herbicides.

Q: 4 (A) State whether following statements are true/false.
1. Light respiration occurs in leaves while dark respiration occurs in all living plant tissues.
2. Water potential of pure water in liquid state is zero while in solid state, it would be greater than zero.
3. Water has a high surface tension which is responsible for its use in evaporative cooling.
4. Photosynthesis is the only process which manufactures organic food from inorganic raw materials.
5. Glycolysis is occurring in mitochondria.
6. Upper epidermis and cuticle are less transparent to light.
7. The cell wall develops an opposite and equal pressure to turgor pressure.
8. The reaction center of chlorophyll of PS-I absorb maximum at 680 nm.
9. As humidity at Navsari is high compared to Jagudan, so the transpiration is high at Navsari.
10. Assume that a plant cell with a water potential of $-1.0$ MPa is placed in a beaker contain a sucrose solution that has a water potential of $-4.0$ MPa. After a few hours, the cell is removed. Now a drop of sucrose ($-4.0$ MPa) placed in the solution and it will float on the solution surface.

(B) Answer the following in brief. (Any Four).
1. Write down the criteria of essentiality of plant nutrients.
2. Enlist factor affecting rate of water absorption.
3. Enlist role of water in plants.
4. Give significance of photosynthesis.
5. Briefly explain biological nitrogen fixation.
AGRICULTURAL UNIVERSITIES OF GUJARAT

Second Semester End Examination of B.Sc. (Hons.) Horticulture (Regular) June-2018

Course No.: PPT 2.1 Course Title: Fundamentals of Plant Pathology (2 + 1)

Date: 15/06/18 Time: 9.30 to 11.30 hrs.
Day: Friday Marks: 50.00

Q.1A Write “T” for true and “F” for false statement. 3.0
   i. Viral diseases can be managed by the application of fungicide.
   ii. Oogonium is a female sex organ.
   iii. Carbendazim is contact fungicide.
   iv. Primary infection initiate the disease.
   v. Fungi is a prokaryotic organism.
   vi. Pilli is responsible for bacterial cell movement.
   vii. Late blight of potato was responsible for causing Irish famine in the year 1845.
   viii. Bordeaux mixture was discovered by P.M.A. Millardet.
   ix. Etiolation is occurred due to iron deficiency.
   x. Bacteria reproduces by means of binary fission.

Q.1B Define/Explain the following (Any Five) 5.0
   i. Plant Pathology  ii. Plant Disease  iii. Pathogen
   iv. Fungicide  v. Biological control  vi. Hypertrophy

Q.1C Write down the contribution of following scientists (Any Four) 4.0
   i. P.A. Micheli  ii. Anton de Bary  iii. M.W. Beijerinck

Q.2A Fill in the blanks 4.0
   i. Black tip or tip necrosis of mango is occurs due to .......... air pollutant.
   ii. The capacity of pathogen to cause the disease is called as .......... 
   iii. When the pathogen perpetuates through the agency of soil is known as .......... disease.
   iv. ............ is an obligate root hemi parasite.
   v. In India, Destructive Insects and Pests Act passed in .......... year.
   vi. Wettable sulphur is generally used for the control of .......... disease.
   vii. Animal dispersal of pathogens is called .......... 
   viii. Cheapest, easiest, safest and most effective method of plant disease management is .......
   ix. Asexual spore of fungi is called ............ 
   x. The cell wall of fungi is made up of ............ 

Q.2B Differentiate the following (Any Five) 5.0
   i. Symptoms and Signs  ii. Gram positive and Gram negative bacteria
   iii. Eukaryotic cell and Prokaryotic cell  iv. Horizontal and Vertical Resistance
   v. Host specific toxin and Non host specific  vi. Simple interest and Compound interest
toxin disease

Q.2C Explain classification of plant diseases with example. 4.0

OR

Q.3A Chose the correct answer from the multiple choice 4.0
   i. Bengal famine was due to brown leaf spot of ........
      a. Maize  c. Cotton
      b. Rice  d. Potato
   ii. If disease affect only specific organs or parts of the plant, is known as.
      a. Localized  c. Non systemic disease
      b. Systemic  d. None of these

P.T.O
iii. A book “Nova Plantarum Genera” was written by ........
a. P. A. Micheli  c. Anton de Bary 
b. T. Needham  d. P.M. A. Millardet

iv. In classification of fungi, taxon order ends with....... 
a. mycetes  c. mycotina 
b. aceae  d. ales

v. Which one is non parasitic cause of plant disease? 
a. Temperature extreme  c. Bacteria 
b. Fungi  d. Nematode

vi. Bacterial plant pathogen enters in the plant through ............
a. Stomata  c. Hydathodes 
b. Lenticels  d. All of these

vii. Generally each ascus contain ........... ascospores.
a. Four  c. Eight 
b. Two  d. Six

viii. Indirect dispersal of infectious plant pathogen is also known as ...... 
a. Local dispersal  c. Passive dispersal 
b. Active dispersal  d. Systemic dispersal

ix. Hot water treatment is useful for the management of ............ 
a. Air borne disease  c. Soil borne disease 
b. Soil and airborne diseases  d. Seed borne disease

x. Bordeaux mixture is a ............... 
   a. Sulphur fungicide  c. Copper fungicide 
   b. Organomercurial fungicide  d. Triazole fungicide

Q.3B Write down short note on following (Any Six) 
i. Disease Pyramid

iii. Objectives of Plant Pathology

v. Koch’s postulates

vii. Flowering plant parasite

Q.4A Match the following
   i. Fungal bio control agent 
   ii. Bacterial bio control agent 
   iii. Downy mildew of grape 
   iv. Citrus canker 
   v. Hypha with cross wall 
   vi. Hypha without cross wall 
   vii. Appressorium 
   viii. Haustorium 
   ix. Die-back 
   x. Wilt

   a. Coenocytic hypha 
   b. Drying of branches from tip to downward 
   c. Septate hypha 
   d. Loose turgidity 
   e. Trichoderma viride 
   f. Organ for attachment 
   g. Fungal disease 
   h. Bacillus subtilis 
   i. Organ for absorption 
   j. Bacterial disease

Q.4B Explain in Details (Any Two)
i. Sexual reproduction of Fungi.

   ii. Enlist the principles of plant disease management and explain any one in detail.

   iii. Enlist the primary events occur during pathogenesis and explain any one in detail.
Q.1 A Define/explain the following (any five) (5.00)

1. Critical stage of water requirement
2. Duty of water
3. Fertigation
4. Water use efficiency
5. Percolation
6. Corrugation

Q.1 B Match the followings (4.00)

Part-I

1. Adhesion
2. Drainable water
3. Infiltration
4. Cohesion
5. Available soil moisture
6. Permeability
7. 1 Bar
8. 1 Atmosphere

Part-II

A. (FC – PWP/100) x BD x D
B. 1032 cm of water column
C. Solid-liquid interface
D. (MWHC – FC/100) x BD x D
E. Movement of water from surface into the soil
F. 1023 cm of water column
G. Ability of soil to allow water to pass through it
H. Only liquid interface

Q.1 C. Choose and write the correct answer for the followings (4.00)

1. Book on Irrigation-Theory and Practice was written by...
   (A) Michael A. M (B) C.V.Raman (C) Simcha blass (D) Reddy S. R
2. One hectare meter is equal to ______ M³ of water
   (A) 100 (B) 1000 (C) 10000 (D) 100000
3. Basin method of irrigation is more suitable in...
   (A) Fruit crops (B) Field crops (C) Fodder crops (D) Cash crops
4. Unit to express infiltration rate of soil is...
   (A) cm/hr (B) ml/hr (C) l/hr (D) None of these
5. Crop water use efficiency is equal to...
   (A) Y/WR (B)WR/Y (C)Y/ET (D) ET/Y
6. Which of the following is deep rooted crop?
   (A) Pineapple (B) Citrus (C) Banana (D) Coconut
7. Which of the following crop required more water through out the growth period?
   (A) Banana (B) Papaya (C) Potato (D) Tomato
8. Moisture sensitive stage of onion crop is...
   (A) Bulb formation (B) Flowering (C) Fruiting (D) Harvesting

Q.2 A. Define irrigation and enlist different methods of irrigation and explain the drip irrigation system. (5.00)

OR

Draw a flow chart showing the water balance on full exploitation.

P.T.O...
Q.2 B. Fill in the blanks
1. The rainfall below ________ mm is not considered for water budgeting.
2. ________ type of soil has higher water holding capacity.
3. South-west monsoon contributes about ________% of rainfall to India.
4. IR = _____ - (ER + S).
5. In meteorological approach irrigation scheduling is based on the cumulative pan evaporation and ________
6. If volumetric moisture content of soil is 21% and BD is 1.4 g/cc, the gravimetric moisture content is ________
7. A device used to measure the losses of water supplied to a crop in the form of ET and percolation by ________

Q.3 A. Differentiate the followings (any two)
1. Surface drainage v/s Sub surface drainage.
2. Water requirement v/s Irrigation requirement.
3. FC v/s PWP.

Q.3 B. Write short note on followings (any three)
1. Explain about soil water potential.
2. Soil moisture extraction pattern.
4. Advantages of irrigation.
5. Water management practices for Mango and Potato.

Q.4 A. Do as directed (any four)
1. Classify irrigation water based on salinity hazard.
3. How to increase infiltration rate?
4. Enlist different methods of soil moisture determination.
5. How to manage poor quality water?
6. Define drainage and list out different types of drainage system.

Q.4 B. Calculate the following examples
1. It is proposed to schedule irrigation to tomato crop at IW/CPE ratio at 0.50 and 0.75 with 6 cm depth of irrigation water. What should be the CPEs for each of two irrigation schedules?
2. Calculate the volumetric moisture percentage, if core sampler having the dimension of 2 cm radius and 15 cm height. The fresh and oven dry weights of the soil samples are 480 and 420 g, respectively.

***************
AGRICULTURAL UNIVERSITIES OF GUJARAT  
(ANAND/JUNAGADH/NAVSARI/SARDARKRUSHINAGAR)  
Second Semester B.Sc. (Hons.) Horticulture End Examination (Regular):- 2018  
COURSE No.: NRMH 2.2  
TITLE: Soil Fertility and Nutrient Management  

**Date**: 13/06/2018  
**Day**: Wednesday  
**Time**: 9.30 to 11.30  
**Marks**: 50.00

**Note**: 1. All questions are compulsory and attempt in answer sheet only.

**Q. 1**  
(A) Select most appropriate answer from the given options (5.0)

1. Which of the following factor(s) affecting crop productivity?
   A. Climatic  
   B. Biotic  
   C. Adaphic  
   D. All of these

2. C:N ratio of cultivated soil is stabilized at ________.
   A. 10:1 to 12:1  
   B. 16:1 to 18:1  
   C. 22:1 to 26:1  
   D. 35:1 to 37:1

3. ________ is the primary source of organic matter in the soil.
   A. Animals  
   B. Vegetation  
   C. Microorganisms  
   D. None of these

4. The essentiality of nitrogen was discovered by ________.
   A. C. Sprengel  
   B. Priestley  
   C. E. Gris  
   D. Theodore de Saussure

5. ________ soil is also known as white alkali soil.
   A. Sodic  
   B. Alkali  
   C. Saline  
   D. Alkaline

6. Phosphorus is taken up by the plants in the form(s) of ________.
   A. $\text{H}_3\text{PO}_4$  
   B. $\text{P}_2\text{O}_5$  
   C. $\text{H}_2\text{PO}_4^-$  
   D. All of these

7. ________ are examples of immobile nutrients in the plant.
   A. N and P  
   B. N and K  
   C. Ca and B  
   D. Zn and S

8. Ammonium sulphate contains ________% nitrogen.
   A. 18  
   B. 21  
   C. 24  
   D. 46

9. Movement of nutrients along with water from soil to plant root is called as ________.
   A. Diffusion  
   B. Mass flow  
   C. Osmosis  
   D. Root interception.

10. The application of fertilizers through irrigation water is known as ________.
    A. Ferti-fortification  
    B. Fertigation  
    C. Broadcasting  
    D. Foliar spray

(B) Define/Explain the following terms (Any four) (4.0)

1. Essential nutrients  
2. Soil testing  
3. Nitrification  
4. Hidden hunger  
5. Soil Productivity  
6. Calcareous soil

(C) What is fertilizer? Classify the nitrogenous fertilizers with examples (4.0)

**Q. 2**  
(A) Match the followings (4.0)

<table>
<thead>
<tr>
<th>Group &quot;A&quot;</th>
<th>Group &quot;B&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Mineralization</td>
<td>A. Nitrogen</td>
</tr>
<tr>
<td>2. Immobile nutrient in soil</td>
<td>B. Organic to inorganic</td>
</tr>
<tr>
<td>3. Immobilization</td>
<td>C. Sulphur</td>
</tr>
<tr>
<td>4. Yellowing of young leaves</td>
<td>D. Alkali soils</td>
</tr>
<tr>
<td>5. Immobile nutrient in plant</td>
<td>E. Inorganic to organic</td>
</tr>
<tr>
<td>6. Yellowing of old leaves</td>
<td>F. Calcium</td>
</tr>
<tr>
<td>7. Lime requirement</td>
<td>G. Acid soils</td>
</tr>
<tr>
<td>8. Gypsum requirement</td>
<td>H. Phosphorus</td>
</tr>
</tbody>
</table>

(P. T. O.)
(B) Differentiate the following (Any two) 
1. Manures vs. Fertilizers  
2. Essential vs. Beneficial nutrients  
3. Saline soil vs Alkali soil  

(C) What is essential nutrients? Classify them based on their requirement in plant

Q.3 (A) Give the Scientific reason(s) of the following (Any four) 
1. Phosphatic fertilizers should be applied in root zone of the crop.  
2. Gypsum should not be recommended to reclaim acid soils.  
3. Split application of nitrogenous fertilizers is advisable.  
4. Micronutrient deficiencies are more common in calcareous soils.  
5. Now a day, the sulphur deficiency is wide spread in cultivated soils.

(B) Calculate the following examples 
1. A soil having CEC is 25 me/100 g and exchangeable Na is 8 me /100 g soil. Calculate Gypsum requirement in t/ha to reduce the ESP 10.  
2. The recommended dose of N, P2O5 and K2O for tomato crop is 100 :50 :50 kg/ha. Calculate the amount of fertilizers required in the form of urea, single super phosphate and muriate of potash.

(C) Explain in detail (Any one) 
1. Role of organic matter in soil.  
2. What is saline soil? Discuss the causes for development of saline soil.

Q. 4 (A) Do as Directed (Any four) 
1. Give the criteria of essentiality of plant nutrients.  
2. Give at least two functions of nitrogen and phosphorus in plant.  
3. Enlist the sources of nutrient in plants.  
4. What do you mean by C:N ratio?  
5. Explain the term “Integrated Nutrient Management”

(B) Write short note on the followings (Any two) 
1. Methods of soil fertility evaluation  
2. Different methods of fertilizer application  
3. Mechanism of nutrient transport from soil to plant root

(C) State weather the flowing sentences are true or false. 
1. Productive soils are always fertile soils.  
2. Soil fertility is expressed in terms of kg/ha.  
3. Intercellular chlorosis in plant is associated with deficiency of sulphur  
4. Adverse physical conditions of soil is a characteristic of saline soil  
5. Available P2O5 more than 28 kg/ha is categorized as high content in soil.  
6. The succulence in plant growth is associated with excess application of nitrogenous fertilizers
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2. Junagadh Agril. University, Junagadh
3. Navsari Agril. University, Navsari
4. S.D.Agril. University, Sardarkrushinagar

Second Semester End Examination of B.Sc. (Hons.) Horticulture (Regular) 2018

FLA 2.1 : ORNAMENTAL HORTICULTURE (1+1)

Date : 12/06/2018
Day : Tuesday
Marks : 50.00

Q.1 (A) Fill in the blanks
1. _______ do not produce seeds and flowers but reproduced by means of spores.
2. _______ is a surface flowering aquatic plant.
3. _______ is a most suitable method of irrigation for lawn.
4. _______ is a garden created in marshy land with water loving plant.
5. Butea monosperma is botanical name of ________.
6. Peltophorum sp. is having _______ colour flowers.
7. The great Emperor Ashoka adopted _______ as one of his state policies.
8. Spines in cactus are modification of ________.

(B) Write in detail about history of gardening in India.

(C) Differentiate between following (Any four)
1. Tree and Shrub
2. Arch and Pergola
3. Edge and Hedge
4. Eastern and Western flower arrangement
5. Loose flower and cut flower

Q.2 (A) Match the following
1. death of Lord Buddha
2. Enlightenment of Lord Buddha
3. Stone lantern
4. Trophy
5. Island
6. Winter annual
7. Summer annual
8. Monsoon annual

A. Plant component
B. Balsam
C. Pipal tree (Ficus religiosa)
D. Gomphrena
E. Petunia
F. Non plant component
G. Garden adornment
H. Sal tree (Shorea robusta)
(B) Write short notes on following (Any four)
1. Dish garden
2. Roof garden
3. Rockery
4. Bird bath
5. Water garden

Q.3 (A) State whether the following sentences are “True” or “False”
1. Coleus is a flowering shrub.
2. Zebrina have red flowers.
3. Succulents are the plants with areoles.
4. Monstera is attractive foliage climber.
5. *Delonix regia* is a shrub having red colour flowers.
6. Adenium is flowering succulent.
7. Duranta is a shrub mostly used for making hedge.
8. *Hamelia patens* is a popular flowering climber.

(B) Define / Explain following terms (Any five)
1. Shrubbery
2. Terrarium
3. Vertical garden
4. Annual
5. Topiary
6. Bonsai

(C) Define lawn. Explain different planting methods of lawn in detail.

Q.4 (A) Give two examples for the each of the following (Any four)
1. White flowering shrub
2. Scented climbers
3. Red flowering tree
4. Flowering succulent
5. Summer season annual

(B) Do as Directed (Any four)
1. Enlist types of tree according to canopy with suitable example.
2. Write uses of climber with suitable example.
3. Enlist importance of floriculture.
4. Enlist characters of plant used for bonsai.
5. Enlist characters of plant used for carpet bedding.
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ANAND / JUNAGADH / NAVSARI / SARDARKRUSHINAGAR
Second Semester B. Sc. (Hons.) Horticulture End Examination (Regular)—2018

Course No.: FRT.2.2 Title of Course: Plant Propagation and Nursery Management (1+1)

Date: 11/06/2018 Time: 09.30 to 11.30 hrs.

<table>
<thead>
<tr>
<th>Q.1 (A)</th>
<th>Define / Explain following terms (Any Seven)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Propagation</td>
<td>2. Nursery</td>
</tr>
<tr>
<td>4. Totipotency</td>
<td>5. Chimera</td>
</tr>
</tbody>
</table>

(B) Define dormancy. Enlist different methods of breaking seed dormancy and describe any two in detail.

Q.2 (A) Define asexual propagation. Give classification of asexual methods of propagation with two examples in each method.

(B) Fill up the blanks.

1. ___________ is the major disease in seedling nursery.
2. A mass of undifferentiated parenchymatous cells are known as ___________.
3. A plant part grafted or budded on stock plant and forms shoot system is known as ___________.
4. Generally rootstocks in fruit crops are raised through ___________.
5. ___________ is the most commonly used media for air-layering.
6. The seeds of ___________ region crops generally require stratification to break seed dormancy.
7. During germination, ___________ is the first organ to emerge from the seed.
8. New hybrids can be developed easily through ___________ method of propagation.
9. Mist chamber is normally used for hardening of ___________.
10. In India, agency for accreditation and rating of horticultural nurseries is ___________.
11. In air-layering or cuttings, ___________ growth regulator is used for better rooting.
12. Micro-grafting is normally done in ___________ fruit crop.

Q.3 (A) Do as directed (Any Four).

1. Enlist methods of grafting and explain any one in detail with figure.
2. Enlist factors affecting rooting of cuttings and explain any one in detail.
3. Enlist different types of propagation media and write characteristics of an ideal growing media.
4. Write uses of PGRs in nursery.
5. Enlist characteristics of mother block in nursery.
(B) Match group A with group B.

<table>
<thead>
<tr>
<th>Group A</th>
<th>Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strawberry</td>
<td>Tissue culture</td>
</tr>
<tr>
<td>Banana</td>
<td>Root suckers</td>
</tr>
<tr>
<td>Pomegranate</td>
<td>Corm</td>
</tr>
<tr>
<td>Mango</td>
<td>Patch budding</td>
</tr>
<tr>
<td>Garlic</td>
<td>Seed</td>
</tr>
<tr>
<td>Gladiolus</td>
<td>Hardwood cutting</td>
</tr>
<tr>
<td>Bryophyllum</td>
<td>Bulb</td>
</tr>
<tr>
<td>Papaya</td>
<td>Leaf</td>
</tr>
<tr>
<td>Aonla</td>
<td>Runner</td>
</tr>
<tr>
<td>Curry leaf</td>
<td>Softwood grafting</td>
</tr>
</tbody>
</table>

Q.4 (A) Differentiate the following (Any Four).

1. Scarification V/s Stratification
2. Recalcitrant seed V/s Orthodox seed
3. Epigeal germination V/s Hypogeal germination
4. Grafting V/s Layering
5. Retail nursery V/s Wholesale nursery

(B) Write whether the sentence is True OR False.

1. The temperature inside the greenhouse will be lower than the outside.
2. The beneficial effects of rootstock can be explored in air-layering.
3. The rooting of softwood cuttings under mist chamber gives better success.
4. Virus free plants can be raised through meristem culture technique.
5. The plants belong to different species but same family can be grafted together.
6. In epicotyl grafting 6-7 months old rootstock is used.
7. Interstock is used to overcome the graft incompatibility between stock & scion.
8. Air-layering is generally practiced during winter month.