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Question Paper Code : 27012

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

Second Semester

Agriculture Engineering

AI 6201 — PRINCIPLES OF AGRICULTURAL ENGINEERING

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What factors are considered to classify soil suitable for irrigation?
2. Mention any four soil conservative measures to control erosion on hilly terrain.
3. What are the types of Evaporimeters?
4. What are the salient differences between a green house and a shade net?
5. Under what field conditions are Power Tillers preferred over Tractors?
6. Mention some of the field equipments or implements used for plant protection.
7. What are the various types of cheese available in the market?
8. What is meant by Parboiling of rice? Why is rice parboiled?
9. What are bio fuels? Mention a few agricultural by-products used in making bio fuels.
10. What are the disadvantages of solar energy?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss the importance of Agricultural Engineering in India. (8)
- (ii) What are the characteristics of a Watershed? (8)

Or

- (b) (i) How to classify the Soil based on its Irrigability? (4)
- (ii) Explain the types of soil erosion and the conservative measures in brief. (12)

12. (a) (i) Define Irrigation Scheduling? State its significance at different growth stages. (8)
- (ii) What is Controlled Environment Agriculture? Explain in brief. (8)

Or

- (b) Explain in detail the role, significance and usefulness of Participatory Irrigation Management under the present day context. (16)
13. (a) What is primary and secondary tillage? Explain about the equipments used for agricultural tilling operations. (16)

Or

- (b) (i) Explain the different types of seed metering devices. (8)
- (ii) Explain the brief about the types of pumps used in agriculture. (8)
14. (a) Explain in detail about the unit operations of Food Processing. (16)

Or

- (b) Explain about the planning and functions of Material Handling Systems. (16)
15. (a) What are the methods of space heating? Explain the types of solar energy collectors. (16)

Or

- (b) Explain how the bio-gas energy is utilized for agriculture stating the principle of energy production. (16)
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Question Paper Code : 57020

B.E./B. Tech. DEGREE EXAMINATION, MAY/JUNE 2016

Second Semester

Agriculture Engineering

AI 6201 – PRINCIPLES OF AGRICULTURAL ENGINEERING

(Regulation 2013)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A (10 × 2 = 20 Marks)

1. Expand ICRISAT and write its role.
2. In agro meteorology, what is an Automatic Weather Station ?
3. Differentiate a silo and bin.
4. What do you understand by protected cultivation ?
5. Write a note on sub-soiler.
6. How are sprayers and dusters important for plant protection ?
7. List some of the losses during post harvest of crops.
8. Differentiate sterilization and pasteurization.
9. What are biofuels ? Give examples.
10. List the use of biogas in Agriculture.

PART – B (5 × 16 = 80 Marks)

11. (a) (i) Using USLE, calculate the soil erosion in a 20 ha catchment for the following information.
R = 1000 (t-m/ha) (mm/h) per year
K = 0.25 t/ha/R
LS = 0.1
C = 0.5
Contour farming in 12 ha (P = 0.6), Strip cropping in 8 ha (P = 0.3)
If no soil conservation practices are used in the above catchment, what would be the soil loss rate? (6)
- (ii) Discuss the soil - water - plant relationship in detail with a neat sketch. (10)
- OR**
- (b) What are the methods of irrigation? Discuss the drip system of irrigation with a neat sketch of layout indicating all components. (16)
12. (a) Discuss the design requirements of a cattle shed. (16)
- OR**
- (b) Explain the design requirements and applications of green houses and shade net in detail with neat diagram. (16)
13. (a) Discuss the importance of primary and secondary tillage in agriculture. Explain the equipments required for the same. (16)
- OR**
- (b) Explain the different pumps that are used in agriculture with their characteristics. (16)
14. (a) Discuss the different material handling equipments and their applications. (16)
- OR**
- (b) Explain the ripening chamber and cold storage with their applications to agriculture. (16)
15. (a) (i) What are renewable and non-renewable energy sources? Discuss their advantages and disadvantages. (8)
- (ii) With a neat sketch, explain the working of a solar PV cell and its applications to agriculture. (8)
- OR**
- (b) (i) List the various agricultural wastes and discuss how are they utilised. (8)
- (ii) Explain the process of gasification of biomass and its application for IC engines. (8)

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Question Paper Code : 77007

B.E./B.Tech. DEGREE EXAMINATION, APRIL/MAY 2015.

Second Semester

Agriculture Engineering

AI 6201 — PRINCIPLES OF AGRICULTURAL ENGINEERING

(Regulation 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Expand ICAR and write its role.
2. What are the branches of Agricultural Engineering?
3. Differentiate a *cattle shed* and *stanchion barn*.
4. What do you understand by Irrigation Scheduling?
5. Write a note on *Rotovator*.
6. How are primary and secondary tillage important for land preparation?
7. List some material handling equipments and where are they used?
8. Why is pasteurization of milk important?
9. Compare and contrast gober gas and LPG.
10. With few examples, justify how agricultural waste is utilised.

PART B — (5 × 16 = 80 marks)

11. (a) (i) What is renewable energy? Discuss its advantages and disadvantages. (8)
- (ii) With a neat sketch, explain the working of a wind mill. (8)

Or

- (b) (i) Discuss the energy requirements in agricultural operations. (8)
(ii) Explain the solar energy system and its applications to agriculture. (8)
12. (a) (i) Define watershed management and its objectives. (8)
(ii) Explain how soil erosion is calculated. (8)

Or

- (b) What are the methods of irrigation? Discuss any one method of micro irrigation in detail with a neat sketch. (16)
13. (a) Discuss the design requirements of a poultry shed. (16)

Or

- (b) Explain the design requirements and applications of green houses and shade net in detail with neat diagram. (16)
14. (a) (i) Discuss the importance of mechanized agriculture. (12)
(ii) Maximum yield of maize is obtained with a population of 25000 plants per hectare. The rows are 120 cm apart and an average emergence of 90% is expected. Find (1) how many seeds per hill should be planted if hills are 120 cm apart and (2) what would be the spacing if crop is drilled? (4)

Or

- (b) Explain a power tiller, its components and functions in detail. (16)
15. (a) Discuss the types of packaging, packaging materials and the ways to improve the same. (16)

Or

- (b) (i) Why is post harvesting important for crops? (6)
(ii) Discuss the various unit operations in processing milk. (10)

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Question Paper Code : 80030

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016.

Second Semester

Agriculture Engineering

AI 6201 – PRINCIPLES OF AGRICULTURAL ENGINEERING

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is permanent wilting point?
2. Mention any three soil conservative measures to control erosion on hilly terrain.
3. What are the factors to be considered while constructing a hog farm?
4. What are the salient difference between a green house and a shade net?
5. Classify the types of sprayers with example.
6. What is Harrowing?
7. Name any three fermented products from milk.
8. Why is rice parboiled?
9. What are bio fuels? Mention a few agricultural by-products used in making bio fuels.
10. What are the disadvantages of solar energy?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss the importance of Agricultural Engineering in India. (8)
- (ii) What are the characteristics of a Watershed? (8)

Or

- (b) Explain in detail the role, significance and usefulness of Participatory Irrigation Management under the present day context. (16)

12. (a) Explain the types of Food grain storage structures. (16)

Or

(b) Explain in detail about the different structures used for protecting plants. (16)

13. (a) Explain the types and working of tractor stating the characteristics. (16)

Or

(b) (i) Explain in brief about the different types of Ploughs. (8)

(ii) Explain in brief about the types of pumps used in agriculture. (8)

14. (a) Explain in detail about the processing technology of Milk with a flowchart. (16)

Or

(b) Explain in about the unit operations of Post harvesting technology of crops. (16)

15. (a) What are the methods of Space heating? Explain the types of Solar energy Collectors. (16)

Or

(b) Explain how the bio-gas energy is utilized for agriculture stating the principle of energy production. (16)
