

FOR EVALUATOR'S USE ONLY

Sub. Code : **60**

Optional Paper

Agricultural Engineering : Paper-II

Time : 3 Hours / Maximum Marks : 200 / Total Pages : 32

Evaluation Table												(For Evaluator's Use Only)		
PART-A				PART-B				PART-C				Grand Total		
QN	E-1	E-2	AG	QN	E-1	E-2	AG	QN	E-1	E-2	AG	PART-A		
1				21				33				PART-B		
2				22				34				PART-C		
3				23				35				Total		
4				24				36				(-) Marks		
5				25				37				Final Total		
6				26				38				Marks in Words		
7				27				39				Remarks of Evaluator/Chief Evaluator		
8			28											
9				29										
10				30										
11				31								Remarks of Scrutiniser		
12				32										
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20														
Total														
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PART – A

Marks : 40

Note : Attempt all the **twenty** questions. Each question carries **2** marks. Answer should not exceed **15** words.

1 How do you define the Indicated Horse Power of an Engine?

2 What is a coupling?

3 How do you calculate traction efficiency?

4 Define tilt angle in a disc plough.

5 What is a psychrometric chart?

6 Briefly explain the Dalton's law of partial pressure of gases.



7 An electric motor has an efficiency of 90%. What would be input power required if it gives an output of 360 watts?

8 What do you understand by a solar tracker?

9 Define the Young's Modulus.



10 Why seasoning of wood is necessary?

11 What is a pyrometer? Is it same as a pyranometer?

12 Define compression ratio and give its range of values for petrol and diesel engines.



13 What is the function of a solar cell?

14 What is an aero-generator?

15 Why curing is required in concrete works?



16 Define drying efficiency.

17 Define depreciation and write the method used to calculate depreciation in cost analysis of farm machinery.

18 Why is parboiling considered advantageous in rice processing?



19 What is a silo?

20 What do you understand by power factor?

PART – B

Marks : 60

Note : Attempt all the **twelve** questions. Each question carries 5 marks. Answer should not exceed 50 words.

21 What is a differential and what are its advantages?

22 Explain registration and alignment in a mower.

23 What width of boom is required on a sprayer operating at 10 km/hr to permit spraying of 18 ha field in 8 working hours if 25% of this time is lost in different ways during spraying?

24 What do you understand by surface hardening of metals? What are annealing, hardening and tempering in heat treatment to obtain desirable physical properties in the metal?



- 25 Calculate the width of the foundation for a building having 4500 kg dead weight per running meter of the foundation. Assume the bearing pressure of the soil as 5000 kg/m².

- 26 Differentiate between a shallow and a deep bin with respect to its dimensions and grain storage.



27 What is a transformer? A 5 kVA transformer has a nominal primary voltage of 480 and nominal secondary voltage of 120. If the primary winding has 200 turns, how many turns are in the secondary winding?

28 Write in brief the working of a 4-stroke cycle in a diesel engine.

29 Discuss various causes of overheating of motors.

30 What is insulation? Give at least 2 units in which insulation is measured.



PART – C

Marks : 100

Note : Attempt any 5 questions. Each question carries 20 marks. Answer should not exceed 200 words.

33 Name the three types of liquid cooling systems employed in tractors. Explain the forced circulation system of cooling engines and list its advantages. How a pressure radiator works in this kind of cooling system?

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39 Explain the power transmission and distribution system in India. List some of precautions needed to distribute the electric power at the farm.



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