


Daffodil
International
University

Daffodil International University

Department of Agricultural Science

Faculty of Health and Life Sciences

Final Examination of FPM 253 (A, B, C)

B Sc Agricultural Science, L-1 T-2 / Spring 2026

Course Code : 0819 1103

Teacher's Initial : DAR + DWA

Course Title : Farm Power and Machinery (Theory)

Marks : 40

Time : 2 Hrs

Answer any eight questions, split answering is strictly prohibited

Sl	Questions	CLO	Marks
✓ 1.	Define farm mechanization. What are the areas of knowledge included in agricultural mechanization? Explain briefly the two challenges/constraints of mechanization with possible solutions as the context of BD mechanization.	CLO1	1+1.5+2.5
✓ 2.	What are the objectives of cooling system of an engine? How does the operating temperature maintain in a tractor? Explain with suitable diagram.	CLO2	1+2+2
✓ 4. 3	Briefly explain how air and fuel are mixed in a carburetor. Differentiate between CI and SI engine.	CLO2	3+2
✓ 5. 4	What are the cost items required to determine the operating cost of a machine. State the equation with the notations. How do you determine the operating cost in Taka/ha for a combine harvester?	CLO3	2+1+2
✓ 6. 5	Explain different methods of crop planting. What are the functions of a disc harrow? What are the conditions when the disc plough is better than the moldboard plough?	CLO4	2+1.5+1.5
✓ 7. 6	Write short notes on: (a) Centrifugal pump, (b) Rice transplanter, (c) Knapsack sprayer, (d) Combine harvester and (e) 2WD and 4WD tractors	CLO6	5×1
8. 7	Calculate the mechanical efficiency of a single cylinder engine developing 37.5 bhp with the following observations: bore 20cm, stroke 28cm, IMEP 7.2 kg/cm ² and the speed of the engine is 480 rpm.	CLO2	5
✓ 9. 8	Calculate the effective field time in hr/ha of a 3-bottom 42 cm mould board plough when operated by a tractor at a forward speed of 6.4 km/hr to cultivate 4 ha land. Consider 20% time is lost during tillage. If the tractor hiring cost with labour and implements is Tk 200 per hour, what will the cost of tillage for this land be?	CLO4	3+2
✓ 10. 9	A farmer desires to irrigate a field which is 12 meters wide and 150 meters long. He wants to apply an average of 75-millimeters of water to the field with a stream of 60 liters per second. How long will it take him to irrigate this field?	CLO5	5