B.Sc. (Honours) Agriculture Semester-III Examination, 2018

Course No: AEG-211 (Farm Machinery and Power)

Signature of Centre Superintendent

Roll No. : (in figure) _____ (in words) _____

Student Index No. _____ Regn. No. _____ of _____

Time : Two Hours **Full marks : 50**

Questions are of value as indicated in the margin

Part - I
(Objective and Short Answer Type)
(Use only ball point pen)

Time : 30 minutes **Full marks : 20**

Note: 1. Answer in question paper itself.
2. Striking, rewriting or overwriting are not allowed in the objective type questions.

1. **Fill up the blanks with most appropriate words :** 0.5×10=5

a) Efficiency of diesel engine is approx _____%

b) Compression ratio of petrol engine is _____ than that of diesel engine.

c) Junk value of agricultural machines is approximately _____ % of initial purchase price.

d) Unit draft is denined as _____ per unit _____.

e) Inclined plate metering device is used in _____ (Planter or seed drill)

f) The field capacity of a power tiller is _____ ha/h approximately.

g) In a four stroke 4 cylinder engine is PLAN x $^{n}/_{2}$ the value of n = _____.

h) SAE _____ grade lubricating oil is used in gearbox of tractor.

i) The mechanical power developed by a pair of medium sized bullocks is _____ HP approx.

j) Field capacity of a pair of ballocks with m.b plough is _____ ha/h.

2. **Differentiate between (any five) :** 2×5=10

a) Seed drill and Planter

b) High volume Sprayer and ULV sprayer

c) Firing order and firing interval

d) Draft and pull

e) BHP and IHP of an I engine

f) Horizontal Suction and vertical suction of an m.b plough

g) Value and port in I.C Engile

3. **Write down the functions of the following machine parts / engine components.** 0.5×10=5

a) Ground wheel in a seed drill

b) Radiator in a tractor

c) Mould board of an m.b. plough

d) Fly wheel of an engine

e) De compression lever in an I C engine

f) Scraper in a disc plough

g) Gear box in a tractor

h) Dog clutch in a power tiller

e) Pegs in ground wheel of planner/seed drill

f) Gauge wheel in a plough

B.Sc. (Honours) Examination, 2018

Semester-III

Agriculture

Course No: AEG-211

(Farm Machinery and Power)

Part - II

(Descriptive Type)

Time : 90 Minutes **Full marks : 30**

Questions are of value as indicated in the margin

Answer *any three* questions

4. a) The size of a bullock drawn m.b. plough is 12 cm. 90% of the width is actually used. Ploughing is done at a speed of 2km/h. Find the theoretical field capacity and effective field capacity of the plough and calculate the time required to plough 10 acres of land thrice.
   b) Describe the fuel supply system of a 4-stroke cycle S. I engine with the help of a neat diagram describing the function of each component. 5+5=10
5. a) The line of pull of a bullock drawn plough makes 40^0 with the horizontal. The dynamometer reading of the pull is found as 65 kgf. Find the draft requirement of the polugh. If the cross sectional area of the polugh is 50 cm^2 find the unit draft.
   b) List the differences between C.I and S.I engine. Describe the working of a 2-stroke cycle SI engine with the help of a neat diagram. 5+5=10
6. a) Describe different types of energy used in agricultural farms with their merits and demerits.
   b) Briefly describe the prospects and scope of farm machinery and power in Indian agriculture with special reference to state of West Bengal. 5+5=10
7. a) What is calibration of seed drill? Describe the step by step procedure for calibrating a seed drill for paddy.
   b) What is secondary tillage implement? Explain any two types of these implements. 5+5=10
8. a) Briefly explain different components of a sprayer with a diagram.
   b) Describe briefly working principle of a Reaper. 5+5=10

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