Roll No. ⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚          **Total No. of Pages : 02**

**Total No. of Questions : 09**

**B.Sc. Agriculture (2014 & Onwards)      (Sem.–4)**

# FARM POWER & MACHINERY
## Subject Code : BSAG-408
## Paper ID : [72760]

**Time : 3 Hrs.**                                    **Max. Marks : 60**

**INSTRUCTIONS TO CANDIDATES :**
 1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
 2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
 3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

### SECTION-A

**Q1. Write short notes on :**

a) Compression ratio

b) Firing order

c) Thermostat valve

d) Secondary tillage

e) Laser land leveller

f) Tilt angle

g) Actual field capacity

h) Field efficiency

i) Foot sprayer

j) Mower

## SECTION-B

Q2.  Differentiate between diesel engine and petrol engine.

Q3.  Calculate the IHP and BHP of a 4 stroke 4 cylinder diesel engine having cylinder bore of 12 cm, stroke length of 15 cm, crankshaft speed of 1200 rpm, and mean effective pressure of 7 kg/ cm$^2$ the mechanical efficiency is 77%.

Q4.  What is the importance of the cooling system in a tractor? Explain in brief the most important system of cooling used on modern tractors with neat sketch.

Q5.  Calculate the seed rate/ hectare of a 7 × l7 cm seed drill, whose main drive wheel is 124 cm diameter and total weight of grain collected in 20 revolution is 0.425 kg.

Q6.  Write down the constructional feature and function of a paddy transplanter with the help of neat sketch.

## SECTION-C

Q7.  What are the objectives of tillage? List the various types of mould board available. Explain the major features and adjustments of mould board plough with a neat sketch.

Q8.  What are the different types of threshing cylinders used in the country? Explain with the help of diagramme.

Q9.  Determine the cost of operation per hour of a tractor with the following parameters, if the price of tractor= rs. 7,00,000/-, life of tractor= 10 years, annual use of tractor= 1000 hr, salvage value= 10%, interest rate = 10%, insurance, taxes and housing charges= 1 % of purchase price, repair and maintenance cost= 2 % of initial cost, price of diesel = rs. 50/- per litre, fuel consumption of tractor= 7.63 1/h, driver charges= rs. 300 per day,. assume necessary assumptions if required.