

Code No: R1622356

R16**SET - 1****II B. Tech II Semester Regular/Supplementary Examinations, April/May - 2019****FARM POWER AND TRACTOR SYSTEMS**

(Agricultural Engineering)

Time: 3 hours

Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)2. Answer **ALL** the question in **Part-A**3. Answer any **FOUR** Questions from **Part-B**

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**PART -A**

1. a) Write the classification of tractors based on different factors? 3M
- b) Write the functions of power transmission system. 2M
- c) List out functions of fly wheel. 2M
- d) What is the necessity of gear box in a power train? 3M
- e) Define coefficient of traction and rolling resistance. 2M
- f) List out different tests to be conducted for tractor. 2M

**PART -B**

2. a) Explain about different sources of farm power. 7M
- b) Calculate (i) IHP (ii) BHP (iii) Stroke bore ratio (iv) Compression ratio of a four stroke four cylinder I.C. engine with the following data: 7M  
Cylinder size : 12.5 x 15 cm  
Fly r speed : 1200 rpm  
Mean effective pressure : 7 kg/cm<sup>2</sup>  
Mechanical efficiency : 70%  
Clearance volume : 150 CC
3. a) Describe about working fuel supply system of a diesel engine. 7M
- b) Why the lubrication system is required for an IC engine explain? 7M
4. a) Explain about power transmission system of an IC engine with neat diagram. 7M
- b) Enumerate briefly different type of clutches? 7M
5. a) Explain about classification of brakes. 7M
- b) Describe about working of hydraulic steering system of a tractor. 7M
6. a) Describe about working of hydraulic system of a tractor with a neat diagram. 7M
- b) Explain briefly about hitching of implements to the tractor. 7M

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7. a) Explain briefly about different lab tests conducted for a tractor 7M
- b) Calculate the location of the centre of gravity of a tractor of the following 7M  
dimensions:  
Wheel base: 2.3m  
Radius of rear wheel : 72cm  
Radius of front wheel : 36 cm  
Width of rear wheel : 23 cm  
Total weight tractor : 1800 kg  
Width of rear wheel: 23 cm  
Weight carried by front wheels on level ground: 630 kg  
Weight carried by front wheels when lifted 46 cm from ground: 540 kg