

Total No. of Questions: 6

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Enrollment No.....



Faculty of Agriculture
End Sem (Odd) Examination Dec-2019
AG3CO20 Farm Machinery and Power

Programme: B.Sc. (Ag.) Branch/Specialisation: Agriculture

Duration: 3 Hrs.

Maximum Marks: 50

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

- Q.1 i. Stroke of an IC engine equals **1**
(a) The crank radius (b) half the crank radius
(c) Twice the crank radius (d) Four times the crank radius
- ii. Size of inlet valve of an engine compared to exhaust valve is **1**
(a) Less
(b) More
(c) Less or more depending on capacity of the engine
(d) Varies with engine design
- iii. Which is not true in the context of the free wheel clutch? **1**
(a) Simplified gear changing at low gear.
(b) Transmission subjected to greater wear and tear.
(c) Effective use of brakes needed to stop the vehicle on a downward slope.
(d) Appreciable saving in fuel on long downward lope
- iv. The purpose of gearbox in an automobile is **1**
(a) To vary the speed of automobile.
(b) To change the torque at the road wheels
(c) To connect the engine to the driving wheels without shock
(d) To enable the driving wheels to turn at different speeds while taking turns.
- v. The operation to perform to open any cultivable land is **1**
(a) Primary tillage (b) Secondary tillage
(c) Minimum tillage (d) Reduced tillage

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- vi. Tractor drawn implements have **1**
 (a) High speed and higher working capacity
 (b) Lower speed and lower working capacity
 (c) Higher speed and lower working capacity
 (d) Lower speed and higher working capacity
- vii. The Common method planting in semi-arid area for crop is **1**
 (a) Flat planting (b) Ridge planting
 (c) Furrow planting (d) All are correct
- viii. A seed drill of size 10 x 20 cm has seed drop in one revolution is 40 grams. The area covered by seed drill in one revolution 9.42 m². The seed rate (kg/h) is: **1**
 (a) 2.2 K (b) 22 K (c) 1.36 K (d) 136 K
- ix. A nozzle used in foam spraying is **1**
 (a) Flat fan nozzle (b) Solid cone nozzle
 (c) Flooding nozzle (d) Air aspirating nozzle
- x. The immersion method is used for identifying: **1**
 (a) Nozzle discharge (b) Droplet size
 (c) Spraying pressure (d) Spray pattern
- Q.2 i. Define farm power in new era of India. **1**
 ii. Explain the difference between two stroke and four stroke cycle engines. **2**
 iii. With the help of neat sketch, explain the different components of two stroke diesel engine. **5**
- OR iv. The bore and stroke of the cylinder of a 6-cylinder engine working on an Otto-cycle are 17 cm and 330 cm respectively, total clearance volume is 9225 cm³, then what is the compression ratio? **5**
- Q.3 i. What is the importance of air cleaning in I.C engine? **1**
 ii. With the help of neat sketch, explain different types of lubrications, used in I.C. engines. **3**
 iii. What is clutch? Explain single plate clutch with neat sketch. **4**
- OR iv. What is gearbox and explain its importance in any vehicle? **4**

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- Q.4 i. What is the importance of tractor types? **2**
 ii. Explain the difference between primary and secondary tillage implementation process. **6**
- OR iii. What kind of farming is there in hilly areas? Explain its importance. **6**
- Q.5 i. What do you mean by intercultural equipment's? **2**
 ii. How does a seed drill work? **2**
 iii. How many types of planting equipment's are used in India for farming process? **4**
- OR iv. The following results were obtained while calibrating a seed drill. **4**
 Calculate the seed rate per hectare.
 (a) No. of furrows = 10
 (b) Spacing between furrows = 20 cm
 (c) Diameter of drive wheel = 1.5 meter
 (d) RPM = 500
 (e) seed collected = 20 kg.
- Q.6 Attempt any two:
 i. Explain the classification of spraying technologies for crops. **4**
 ii. Write short note on **4**
 (a) Rocker sprayer. (b) Foot sprayer
 iii. How many types of harvesting and threshing equipment's are used in farming process, explain with neat sketch? **4**

Marking Scheme
AG3CO20 Farm Machinery and Power

Q.1	i.	Stroke of an IC engine equals (c) Twice the crank radius	1
	ii.	Size of inlet valve of an engine compared to exhaust valve is (b) More	1
	iii.	Which is not true in the context of the free wheel clutch? (b) Transmission subjected to greater wear and tear.	1
	iv.	The purpose of gearbox in an automobile is (b) To change the torque at the road wheels	1
	v.	The operational to perform to open any cultivable land is (a) Primary tillage	1
	vi.	Tractor drawn implements have (a) High speed and higher working capacity	1
	vii.	The Common method planting in semi-arid area for crop is (d) All are correct	1
	viii.	A seed drill of size 10 x 20 cm has seed drop in one revolution is 40 grams. The area covered by seed drill in one revolution 9.42 m ² . The seed rate (kg/h) is: (b) 22 K	1
	ix.	A nozzle used in foam spraying is (d) Air aspirating nozzle	1
	x.	The immersion method is used for identifying: (b) Droplet size	1
Q.2	i.	Define farm power in new era of India. (As per answer)	1
	ii.	Difference between two stroke and four stroke cycle engines. (4 Points)	2
	iii.	Neat sketch Components	5
	iv.	Formulae Calculation Answer	5
Q.3	i.	Importance of air cleaning in I.C engine (As per answer)	1
	ii.	Sketch Types	3
	iii.	Definition clutch Neat sketch.	4

OR	iv.	Gearbox Importance in any vehicle	2 marks 2 mark	4
	Q.4	i. Importance of tractor types(As per answer) ii. Difference between primary and secondary tillage implementation process. (1 mark*6)	2 marks 6	
OR	iii.	Kind of farming is there in hilly areas? Explain its importance. 6 Points (1 mark*6)	6	
	Q.5	i. Intercultural equipment's (As per answer) ii. Seed drill work (As per answer) iii. Types of planting equipment's (As per answer)	2 marks 2 marks 4 marks	2 2 4
OR	iv.	The following results were obtained while calibrating a seed drill. Calculate the seed rate per hectare. (As per explanation)	4 4 marks	
	Q.6	Attempt any two: i. Classification of spraying technologies (4 Points) ii. Write short note on (a) Rocker sprayer. (b) Foot sprayer	(1 mark*4) 4 2 marks 2 marks	
	iii.	Harvesting equipment's Threshing equipment's	2 marks 2 marks	4
