A **Reg. No. :** | | | | | | | | | | |

Question Paper Code: 54A03

B.E./B.Tech. DEGREE EXAMINATION, DEC 2021

Fourth Semester

Agriculture Engineering

15UAG403 - FARM TRACTORS

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. If piston displacement is deducted from the total volume of cylinder the remaining volume is known as CO1- R

   (a) piston displacement (b) clearance volume

   (c) displacement volume (d) compression ratio

2. _____ is connected to the piston through the connecting rod that converts linear motion into rotational motion is called as CO1- R

   (a) Piston pin (b) Crank shaft (c) Cam shaft (d) Connecting rod

3. Which of the following Air-fuel ratio is considered as rich mixture in Spark Ignition (SI) engine? CO2- R

   (a) below 11:1 (b) below 15:1 (c) below 20:1 (d) above 20:1

4. The commercial diesel fuels have got cetane rating varying from CO2- R

   (a) 30 to 40 (b) 30 to 50 (c) 30 to 60 (d) 30 to 70

5. The advantage of three- point linkage is/ are CO3- R

   (a) Easy control of equipments (b) Quick setting of implements

   (c) Automatic hydraulic control of equipments (d) All of the above

6. Tractor engine oil should be changed and all grease points should be lubricated after every ___ working hrs CO3- R

(a) 15 (b) 30 (c) 60 (d) 120

7. The working principle of hydraulic system is based on CO4- R

(a) Boyle's law (b) Stephen Boltzman's law (c) Pascal's law (d) Charle's law

8. In tractor, engine which of the following is a device in which liquid fuel is converted into gaseous fuel? CO4- R

(a) piston (b) carburetor (c) both 1 and 2 (d) none of these

9. The device for engaging and disengaging the power shaft from the gearbox is known as CO5- R

(a)shaft (b)gear (c)clutch (d)circuit

10. Which of the following is a device used on a tractor or stationary engine for maintaining nearly constant engine speed under varying loads? CO5- R

(a) volatility of fuel (b) governor (c) pre-ignition (d) carburator

PART – B (5 x 2= 10 Marks)

11. Explain why black smoke are seen in diesel engine CO1- R

12. Explain the working of magneto ignition system CO2- R

13. List out the different tractor manufacturing company in India CO3- R

14. Define haulage test CO4- R

15. Explain about Traction and traction theory CO5- R

PART – C (5 x 16= 80 Marks)

16. (a) Explain the valve operating mechanism of a spark ignition engine, giving a neat sketch of a system. CO1- U (16)

Or

(b) Explain the working of two stroke cycle engine with neat sketches CO1- U (16)

17. (a) With a neat diagram describe the fuel system of a diesel engine. CO2- U (16)

Or

(b) What is a carburetor? How does it work? Describe the different components of a common carburetor with the help of neat sketches CO2- U (16)

18.	(a)	What is the principle of friction clutch? Explain the working of a single plate clutch with the help of a diagram.	CO3- U	(16)
		Or		
	(b)	What is the function of differential in a tractor? Explain its working with the help of a diagram	CO3- U	(16)
19.	(a)	Explain the principle of hydraulic control system with the help of a diagram	CO4- U	(16)
		Or		
	(b)	Explain the importance of PTO and belt pulley in detail	CO4- U	(16)
20.	(a)	What is the use of tractor testing? What are the different test of a tractor	CO5- U	(16)
		Or		
	(b)	Explain about different tractor tests eligible for OECD approval	CO5- U	(16)