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**Question Paper Code: 54A03**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

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)

- In petrol engines charge is ignited by CO1 -R  
(a) Compression      (b) Spark      (c) Glow plug      (d) Both (a) and (b)
- In diesel engines at the end of compression stroke the pressure varies from CO1 -R  
(a) 6 – 10 kg/cm<sup>2</sup>      (b) 10 – 22 kg/cm<sup>2</sup>      (c) 30 – 45 kg/cm<sup>2</sup>      (d) 15 – 30 kg/cm<sup>2</sup>
- Supercharger is a device for \_\_\_\_\_ the air pressure into the engine CO2- R  
(a) Decreases      (b) Increases      (c) Maintains      (d) None
- \_\_\_\_\_ controls the speed of engine within specific limit CO2 -R  
(a) Differential      (b) Govenner      (c) Battery      (d) Brake
- The main shaft of an engine also called as CO3 -R  
(a) Output shaft      (b) Input shaft      (c) Lay shaft      (d) Counter shaft
- The angle between the center line and vertical line is \_\_\_\_\_. CO3- R  
(a) Castor      (b) Toe in      (c) Toe-out      (d) Camber
- A pump used in power steering system is CO4 -R  
(a) Gear pump      (b) Vane pump      (c) Both A and B      (d) None of these

8. \_\_\_\_\_ maintains the constant depth of ploughing by automatic adjustment of draft of tractor CO4 -R
- (a) position control (b) draft control  
 (c) mixed control (d) all of these
9. Vibration is measured by CO5- R
- (a) Accelerometer (b) Tensiometer (c) Penetrometer (d) Tacometer
10. The two test conducted by Bureau of Indian standards is CO5 -R
- (a) Haulage and structure test (b) Lab and Field test  
 (c) Both a and b (d) none of these

PART – B (5 x 2= 10Marks)

11. What is firing order? Give an example CO1- R
12. Compare Supercharger and Turbocharger CO2 -R
13. State the basic functions of a Differential unit. CO3- R
14. Explain the advantages of 3 point linkage CO4- R
15. Explain Specification checking in tractor testing. CO5- R

PART – C (5 x 16= 80Marks)

16. (a) Explain in detail about the constructional features of IC engine. CO1- App (16)
- Or
- (b) Write in detail about the principle and operation of IC engine with neat sketch CO1 -App (16)
17. (a) (i) Write about the construction of valves with neat sketch by mentioning the parts. CO2 -App (6)
- (ii) What is valve timing diagram? Describe it. CO2 -App (10)
- Or
- (b) Explain the working of Air Intake system with neat sketch. CO2 -Ana (16)
18. (a) (i) Discuss about three point linkage CO3 -Ana (8)
- (ii) Write about the stability of the hydraulic system CO3- Ana (8)

Or

- (b) Explain the Construction and working principle of Constant mesh gearbox CO3 -U (16)
19. (a) Explain hydraulic system and its working principle CO4 -U (16)
- Or
- (b) Write short notes on CO4 -U (16)
- (i) Position control
  - (ii) Drawbar hitch
  - (iii) Three point linkage
  - (iv) PTO
  - (v) Wheel base
  - (vi) Cage wheel
  - (vii) Ground clearance
  - (viii) Governor
20. (a) Discuss about the Optimization of tractor field efficiency to save energy/fuel. CO5- U (16)
- Or
- (b) Explain the need for testing tractors. Discuss the various stages of testing tractors for clearance international marketing. CO5- U (16)

