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**Question Paper Code: R2A04**

B.E. / B.Tech. DEGREE EXAMINATION, APRIL 2024

Second Semester

Agricultural Engineering

**R21UAG206 FARM TRACTOR**

(Regulations R2021)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. The main heart of the tractor is CO1 -U  
(a) tyre                      (b) engine                      (c) steering system                      (d) all of the above
2. The medium power tractor in the range of power from  
(a) 15 to 25 HP                      (b) 25 to 45 HP                      (c) 25 to 35 HP                      (d) 45 HP to 55HP
3. In two stroke engine there is one power stroke for every \_\_\_\_ CO1 -U  
revolutions of the cranks shaft  
(a) carburator                      (b) governor                      (c) fuel                      (d) pre- ignition
4. In a four stroke engine each cylinder has CO1 -U  
(a) One valve                      (b) Two valves                      (c) Three valves                      (d) Four valves
5. Which of the following is the coefficient of friction of the clutch plate CO1 -U  
(a) 1.3                      (b) 0.8                      (c) 0.4                      (d) 0.1
6. Which device from following provides a smooth means of CO1 -U  
disengagement and engagement between the engine and the  
transmission system?  
(a) Gearbox                      (b) Propeller Shaft                      (c) Clutch                      (d) Brake pedal
7. Which type of system uses oil under pressure means of power CO1 -U  
transmission?  
(a) pneumatic system                      (b) hydraulic system                      (c) fluid power system                      (d) stepper motor
8. The force developed in the hydraulic system is high due to CO1 -U  
(a) high pressure                      (b) more oil                      (c) less pressure                      (d) less oil

9. How much power is considered of the torque during the tests at varying load? CO1 -U
- (a) 69%                      (b) 96%                      (c) 23%                      (d) 85%
10. At what speed is the brake test carried out? CO1 -U
- (a) 25 kmph                      (b) 45 kmph                      (c) 19 kmph                      (d) 50 kmph

PART – B (5 x 2= 10Marks)

11. State the main function of piston rings. CO1 -U
12. Classify the tractor based on the type of drive. CO1 -U
13. State the main aim of governor installed in buses. CO1 -U
14. Classify the transmission system in automobile. CO1 -U
15. State the purpose of testing of tractors. CO1 -U

PART – C (5 x 16= 80Marks)

16. (a) Discuss in detail about the options to select tractor for our college purpose. CO2 App (16)
- Or
- (b) Give the proper explanation with neat sketches of 3 cylinder engine firing order. CO2 App (16)
17. (a) Illustrate with neat sketches of the working principle of 4- stroke petrol engine CO3 App (16)
- Or
- (b) Appraise and contrast the working principle of air cooled and water cooled engine. CO3 App (16)
18. (a) Discuss the main uses of transmission system in tractors. CO1 U (16)
- Or
- (b) Draw a neat sketch of final drive and its operation. CO1 U (16)
19. (a) Explain in detail about the basic components of hydraulic system farm tractor CO1 U (16)
- Or
- (b) Explain the three point linkage with neat sketches. CO1 U (16)
20. (a) Discuss about the Optimization of tractor field efficiency to save energy/fuel CO4 App (16)
- Or
- (b) Explain the test codes for performance testing of tractors CO4 App (16)

