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**Question Paper Code: 96A02**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2022

Fourth semester

Agriculture Engineering

19UAG402- Tractor and other Power Units

(Regulations 2019)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. A Firing order of the 4 cylinder engine CO1- U  
(a) 1-4-3-2                      (b) 1-2-3-4                      (c) 1-4-2-3                      (d) none of the above
2. The medium power tractor in the range of power from CO1- U  
(a) 15 to 25 HP                      (b) 25 to 45 HP                      (c) 25 to 35 HP                      (d) 45 HP to 55HP
3. The purpose of radiator is \_\_\_\_\_ of heat to the atmosphere. CO1- U  
(a) Dissipation                      (b) Radiation                      (c) Convection                      (d) Conduction
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 disengagement and engagement between the engine and the transmission system? CO1- U  
(a) Gearbox                      (b) Propeller Shaft                      (c) Clutch                      (d) Brake pedal
7. 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
8. A tractor seat suspension should have its natural frequency in the range of CO1- U  
(a) 0.5 to 2.0 Hz                      (b) 2.0 to 4.0 Hz                      (c) 4.0 to 6.0 Hz                      (d) 6.0 to 8.0 Hz

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 angle the tractor should be tilted on either side while the air cleaner oil pull-over test? CO1- U
- (a) 20°                      (b) 45°                      (c) 30°                      (d) 15°

PART – B (5 x 2= 10 Marks)

11. Where the place the engine bearings are employed? CO1- U
12. Why the exhaust system are upward direction in tractors? CO1- U
13. State the use of clutch in automobile. CO1- U
14. Describe the operation of hydraulic pump. CO1- U
15. What are the necessity of testing of tractor? CO1- U

PART – C (5 x 16= 80 Marks)

16. (a) Design the 4 cylinder tractor engine and explain the firing order of its engine with neat sketches. CO4- D (16)
- Or
- (b) Discuss the function of combustion chamber with neat sketches. CO2- App (16)
17. (a) Illustrate with neat sketches of the valve timing diagram for 4- stroke petrol engine CO3- App (16)
- Or
- (b) Appraise and contrast the working principle of air cooled and water cooled engine. CO4- D (16)
18. (a) Explain with neat sketches of valve timing diagram for 2 stroke diesel engine. CO3- App (16)
- Or
- (b) Explain the different types of front axle. CO3- App (16)
19. (a) Explain in detail about the basic components of hydraulic system. CO3- App (16)
- Or
- (b) Explain the three point linkage with neat sketches. CO3- App (16)
20. (a) Explain the different types of tractor testing. CO3- App (16)
- Or
- (b) Discuss any two alternative sources of fuels CO3- App (16)

