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Question Paper Code: 96A02

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

Fourth semester

Agriculture Engineering

19UAG402- Tractor and other Power Units

(Regulation 2019)

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 CO1- U
(a) 15 to 25 HP (b) 25 to 45 HP (c) 25 to 35 HP (d) 45 HP to 55HP
3. On modern four stroke engines the exhaust valve opens just CO1- U
(a) Before TDC (b) After TDC (c) Before BDC (d) After BDC
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 State the main function of piston rings. 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 3 cylinder tractor engine and explain the firing order of its engine with neat sketches. CO4- D (16)
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 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) Discuss the main uses of transmission system in tractors. 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 test codes for performance testing of tractors CO3- App (16)
 Or
 (b) Discuss any two alternative sources of fuels CO3- App (16)

