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## **Question Paper Code: U3A06**

## B.E./B.Tech. DEGREE EXAMINATION, NOV 2023

## Third Semester

## Agricultural Engineering

	21UAG306– FA	RM TRACTOR		
	(Regulatio	ons 2021)		
ation: Three hours			Maximum: 10	0 Marks
	Answer ALI	Questions		
	PART A - (10 x	1 = 10 Marks)		
The main heart of the	tractor is			CO1-U
(a) tyre (b)eng	gine (c) sterr	ing system	(d) all of the abo	ve
Which one of the foll	owing is not a fixed co	st?		CO1- U
(a) depreciation cost	(b) fuel cost	(c) Insurance	(d) Tax	
•	•	ver stroke for ever	У	CO1- U
(a) carburator	(b) governor	(c) fuel	(d) pre- i	gnition
In most automobiles,	which lubrication syste	em is commonly used	1?	CO1- U
(a) Splash system	(b) Pressure system	(c) Petrol system	(d) Gravity s	system
Which of the following	ng is the coefficient of	friction of the clutch	plate?	CO2- App
(a) 1.3	(b) 0.8	(c) 0.4	(d) 0.1	
What is used to transf	er power from gearbox	to differential?		CO1 -U
(a) Tie rod	(b) Suspension	(c) Pivot	(d) Prope	eller shaft
The force developed	in the hydraulic system	is high due to		CO1-U
(a) high pressure	(b) more oil	(c) less pressure	(d) less of	oil
A tractor seat suspens	sion should have its nat	cural frequency in the	range of (	CO2- App
(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
	(a) tyre (b)enge Which one of the following (a) depreciation cost In two stroke enginerevolutions of the cran (a) carburator In most automobiles, (a) Splash system Which of the following (a) 1.3 What is used to transf (a) Tie rod The force developed in (a) high pressure A tractor seat suspension	(Regulation ation: Three hours  Answer ALI PART A - (10 x  The main heart of the tractor is  (a) tyre (b)engine (c) sterry Which one of the following is not a fixed constant (a) depreciation cost (b) fuel cost  In two stroke engine there is one power revolutions of the cranks shaft  (a) carburator (b) governor  In most automobiles, which lubrication system  Which of the following is the coefficient of (a) 1.3 (b) 0.8  What is used to transfer power from gearbors  (a) Tie rod (b) Suspension  The force developed in the hydraulic system (a) high pressure (b) more oil  A tractor seat suspension should have its national constant (c) and (c) and (c) are constant (c) are constant (c) and (c) are constant (c) are	Answer ALL Questions  PART A - (10 x 1 = 10 Marks)  The main heart of the tractor is  (a) tyre (b)engine (c) sterring system  Which one of the following is not a fixed cost?  (a) depreciation cost (b) fuel cost (c) Insurance  In two stroke engine there is one power stroke for ever revolutions of the cranks shaft  (a) carburator (b) governor (c) fuel  In most automobiles, which lubrication system is commonly used  (a) Splash system (b) Pressure system (c) Petrol system  Which of the following is the coefficient of friction of the clutch  (a) 1.3 (b) 0.8 (c) 0.4  What is used to transfer power from gearbox to differential?  (a) Tie rod (b) Suspension (c) Pivot  The force developed in the hydraulic system is high due to  (a) high pressure (b) more oil (c) less pressure  A tractor seat suspension should have its natural frequency in the	(Regulations 2021)  ation: Three hours  Answer ALL Questions  PART A - (10 x 1 = 10 Marks)  The main heart of the tractor is  (a) tyre (b)engine (c) sterring system (d) all of the abo  Which one of the following is not a fixed cost?  (a) depreciation cost (b) fuel cost (c) Insurance (d) Tax  In two stroke engine there is one power stroke for every  revolutions of the cranks shaft  (a) carburator (b) governor (c) fuel (d) pre-i  In most automobiles, which lubrication system is commonly used?  (a) Splash system (b) Pressure system (c) Petrol system (d) Gravity s  Which of the following is the coefficient of friction of the clutch plate?  (a) 1.3 (b) 0.8 (c) 0.4 (d) 0.1  What is used to transfer power from gearbox to differential?  (a) Tie rod (b) Suspension (c) Pivot (d) Proposition of the clutch plate of the force developed in the hydraulic system is high due to  (a) high pressure (b) more oil (c) less pressure (d) less of the control of the range of (d) control of the clutch plate of the control of the clutch plate of the clu

9.			eight is put on the re of gravity	seat of the	e driver to repl	ace the drive	er to	CO2-	- App
	(a) 1	100 kg	(b) 75 kg		(c) 25 kg		(d) 55 l		
10.		what angle oull-over te	the tractor should b	e tilted on	either side whi	le the air clea	aner	CO2-	- App
	(a) 2	20°	(b) 45°		(c) 30°		(d) 15°		
			PAR	$\Gamma - B$ (5 x 2	2= 10 Marks)				
11.	Clas	ssify the tra	actor based on the ty	ype of drive	<b>2</b> .			CO1-	U
12.	Hov	v to calcula	te depreciation cos	t in tractor	?			CO2-	App
13.	Spe	cify the pur	rpose of drawing th	e valve tim	ing diagram.			CO1-App	
14.								CO1- U	
15.	State the purpose of testing of tractors.					CO1- U			
			PA	RT – C (5	x 16= 80 Marks	s)			
16.	(a)	Explain in	n detail about the po	·			CO1-U	J	(16)
	(b)	Explain in	n detail about the fir		erating cost.		CO1-U	J	(16)
17.	(a)	list price of and the tricharges por Assumption  Assumption	Salvage value (SV Interest rate: 11 % Insurance & taxes Housing: 1 % of Fuel consumption Fuel Cost: Rs 95 p Lubrication cost: Lubrication consumption Repair and Mainter Labour cost: Rs 1	economic be used : 1:11% 1:11% 1:1.5% of lep 1:1lit/hour per lit Rs250 per 1:1mption : 5% 1:100 per hou Or	life of 10 years 500 hours per 1  PP  lit % of fuel 8 %  IT	is assumed, year. Hiring			(16)
	(b)		and contrast the	working p	rinciple of air	cooled and	CO2-A	App	(16)

18.	(a)	Draw a neat sketch of differential and its operation.	CO2-App	(16)
		Or		
	(b)	With a neat sketch discuss the construction and working principle of sliding mesh gear box.	CO2-App	(16)
19.	(a)	Explain in detail about the basic components of hydraulic system.  Or	CO1-U	(16)
	(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	CO1-U	(16)
		Or		
	(b)	Explain the test codes for performance testing of tractors	CO1-U	(16)