SRM VALLIAMMAIENGINEERINGCOLLEGE
(An Autonomous Institutions)

SRM Nagar, Kattankulathur–603203

DEPARTMENT OF AGRICULTURAL ENGINEERING

QUESTIONBANK

VIII SEMESTER

1902805–FARM POWER AND MACHINERY MANAGEMENT

Regulation–2019

Academic Year 2024-2025 (EVEN Semester)

Prepared by

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SUBJECTNAME:1902805 – FARM POWER AND MACHINERY MANAGEMENT

Sem /Year: VIII / IV

UNIT1:INTRODUCTION TO FARM POWER AND DESIGN CRITERIA

Modern trends, principles, procedures, fundamentals and economic considerations for design and development of farm power and machinery systems - Reliability criteria in design and its application.

PART-A

Q.No.	Questions	BT Level	Competence
1.	Define‘offroadvehicle’.Giveexamples.	BT-1	Remembering
2.	Givetheclassificationof tractor.	BT-2	Understanding
3.	Discoverthefactorsweneedtoconsiderwhile selectingthetractor.	BT-3	Applying
4.	Inferwherethecrawlertractorsarepreferredinfarmactivities.	BT-4	Analyzing
5.	Showthepurposes of ploughing.	BT-3	Applying
6.	Namethebasiccomponentsoftractor.	BT-1	Remembering
7.	WhatisanI.C.Engine?Giveits types.	BT-1	Remembering
8.	DifferentiateInternalCombustionandExternalCombustionengine.	BT-2	Understanding
9.	Whatisclearancevolume?	BT-1	Remembering
10.	Definecompressionratioofanengine.	BT-1	Remembering
11.	Whatisthemajorfunctionofanenginecylinder?	BT-2	Understanding
12.	Givetheprimaryfunctionofcrankshaft.	BT-2	Understanding
13.	Whatarethematerialsusedforcrankshaftandconnectingrod intractor engine?	BT-1	Remembering
14.	Definesweptvolume.	BT-1	Remembering
15.	Listthe parts ofengine piston.	BT-1	Remembering

16.	WhatismeantbyfiringorderofanICengine?	BT-2	Understanding
17.	Whichfuelengineisefficient forfarmoperationsandwhy?	BT-6	Creating
18.	Listatleastfourbenefitsoffarmmechanization.	BT-1	Remembering
19.	Whatarethe farmpowers inIndia?	BT-2	Understanding
20.	Listthefiring ordersofsixcylinderdieselengine.	BT-1	Remembering
21.	Classification of tractors Based on structural Design?	BT-1	Remembering
22.	What are the components presents in the wheel tractor?	BT-2	Understanding
23.	What is the function of cylinder head in the IC Engine?	BT-2	Understanding
24.	Define Combustion Chamber (CC)?	BT-1	Remembering
25.	List out the functions of connecting rod and crank shaft.	BT-2	Understanding

PART-B

Q.No		Questions	BT Level	Competence
1.		Whatarethesourcesoffarmpowerin India?Whataretheimportanceofanimal powerand tractor powerinIndia?	BT-2	Understanding
2.		Howwill you classify tractors?Describetheirutility on various farms.	BT-3	Applying
3.		Explainthebasicconstructionoftractorwithneatsketch.	BT-3	Applying
4.		Explaintheconstructionaldetails ofanengineblock.	BT-4	Analyzing
5.		IllustratedifferentcomponentsifIC enginewithdiagram.	BT-3	Applying
6.		Explainaboutvarioustypesofpistonwithneatdiagram.	BT-4	Analyzing
7.		Brieflyexplainaboutvarioustypesofpistonfailures.	BT-3	Applying
8.		Writeshort notes on working of four strokeSIengine withsketch.	BT-2	Understanding
9.		Discussabout theworking oftwo strokeCIenginewithneat diagram.	BT-2	Understanding
10.		Comparepetrolanddieselengine.	BT-4	Analyzing
11.		Anenginehasacylinder10cm.Thelengthofthestrokeisalso10cm. Findthepistonsweptvolume.Iftheclearanceis1/5ofthesweptvolume.Find thecylindervolume and compression ratio.	BT-4	Analyzing
12.		Listtheadvantagesanddisadvantagesof twostrokecycleoverfour strokecycle engine.	BT-1	Remembering

13.		Athreecylinder4-strokeenginedevelops32bhp, whenthecylinderboreis 9 cm, stroke=12.5 cm, compression ratio=16.5: 1, engine speed=2000rpmandmechanicalefficiency=80%.Calculate	BT-4	Analyzing
		(i) Pistondisplacement (ii) Displacementvolume (iii) Pistonspeed (iv) Stroke-boreratio (v) BMEP (vi) IHP (vii) FHP		
14.		A 4 cylinder 4 stroke diesel engine has cylinder diameter 60 mm andstroke 98mm. What is the total volume of air sucked in cm^3 is 100revolutionsof theengine?	BT-4	Analyzing
15.		What are the factors consider for to select the form tractors?	BT-2	Understanding
16.		Writeshort notes on working of Two strokeSIengine withsketch.	BT-2	Understanding
17.		Discussabout theworking ofFour strokeCIenginewithneat diagram.	BT-2	Understanding
18.		Compare Two stroke and Four Stroke engines.	BT-2	Understanding

PART-C			
1.	Discussthestatusandchallenges offarmmechanizationinIndia.	BT-2	Understanding
2.	Explaintheoverheadcostestimationprocedureforfarmmachineries.	BT-3	Applying
3.	Discussthemeritsanddemeritsof usingmoremachineryinagricultureinyourpoint ofview.	BT-2	Understanding
4.	Howelectricalpowerisanimportantpowersourcein Indian agriculture?	BT-6	Creating
5.	Discuss about connecting rod and its working Principle.	BT-2	Understanding

UNIT-II:MACHINERY MANAGEMENT

Maintenance and scheduling of operations.Replacement of old machines, repair and maintenance of agricultural machinery, inventory control of spare parts, work study, productivity, method study.First order Markov chains and their applications in sales forecasting and in problems of inventory control and modeling of workshop processes and quality control.

PART-A

Q.No.	Questions	BT Level	Competence
1.	Whataretheengineering materialsusedforinletandexhaustvalve?	BT-6	Creating
2.	Givedifferentvalveoperatingmechanisms.	BT-2	Understanding
3.	Illustratethepurposeof valvetiming diagram.	BT-3	Applying
4.	Whatis therole ofapre-cleaner?	BT-2	Understanding
5.	Listtheusesofdusters.	BT-1	Remembering
6.	Classifythetypes ofdusters.	BT-3	Applying
7.	Howdoes amuffler work?	BT-2	Understanding
8.	Writeanytworeasonsforengine knocking.	BT-2	Understanding
9.	Definethe termair fuel ratio.Howitis important?	BT-1	Remembering
10.	Defineknocking.	BT-1	Remembering
11.	Concludethecausesof detonation.	BT-5	Evaluating
12.	Whatismeant byscavenging?	BT-2	Understanding
13.	IdentifydifferenttypesofGovernor.	BT-1	Remembering
14.	Whenanenginecoolingsystemneededtobeoperatedincolder regionswhich cooling system will begood?Justify.	BT-6	Creating
15.	Whatistheimportance's ofcoolingsystem?	BT-2	Understanding
16.	Whatarethedisadvantages ofoverheating inengine?	BT-2	Understanding
17.	Whatarethe disadvantagesofovercooling inengine?	BT-2	Understanding
18.	Whatarethetypes oflubricationsystem?	BT-1	Remembering
19.	Givetheidealpropertiesoffuelused intractorengine.	BT-2	Understanding
20.	Whatarethetypes of fuelinjectionsystem?	BT-1	Remembering
21.	Define Governor.	BT-1	Remembering
22.	Whatarethetypes ofcooling system?	BT-1	Remembering
23.	Explain the application of the electrical system in automobile.	BT-1	Remembering
24.	What are the electrical system present in the Automobile?	BT-2	Understanding
25.	Define silencer and mention its types.	BT-1	Remembering

		PART-B		
Q.No		**Questions**	**BT Level**	**Competence**
1.		Whatarethevarioustypesofvalve?Brieflyexplainabouttheworkingof poppet valve.	BT-4	Understanding
2.		Explainaboutvariousvalveoperatingmechanismswithneatsket ches.	BT-4	Analyzing
3.		Briefly explain about the valve timing diagram for a four stroke SIengine.	BT-3	Applying
4.		Discussabout the valvetiming diagramforafour strokeCIengine.	BT-2	Understanding
5.		Explainvariouscomponentsused inexhaustsystem.	BT-4	Analyzing
6.	a.	Whataretheproperties ofefficient coolingsystem? (6)	BT-2	Understanding
	b.	Whatarethedifferencebetweenairandwater coolingsystem? (7)		
7.		Explainvarioustypesof watercoolingsystemwithneatdiagrams.	BT-4	Analyzing
8.		Explainabout variousparts ofradiatorwithneat sketch.	BT-4	Analyzing
9.	a.	Pointoutthepurposes oflubrication. (6)	BT-4	Analyzing
	b.	Explainthetypes oflubricants. (7)		
10.		With suitable sketch explain pressurized lubricating system of atractorwith neat sketch.	BT-3	Applying
11.		Explainabout fuelinjection pump withneat sketch	BT-4	Analyzing
12.		Brieflyexplainaboutbatteryandcoilignitionsystemwithneatsketc h.	BT-3	Applying
13.		Discussabout thegovernor usingasketch.	BT-2	Understanding
14.		Explainaboutthecomponents ofchargingsystem.	BT-4	Analyzing
15.		Define air cleaning system and explain types of air cleaning system used in farm tractors.	BT-4	Analyzing
16.		Explain types of variable valve timing and its advantages and dis advantages.	BT-4	Analyzing
17.		Briefly explain about the pollution control method in exhaust emission.	BT-3	Applying
18.		Explain the unit injector system explain its advantages and disadvantages.	BT-4	Analyzing

	PART-C		
1.	Discussthefuelsystememployedintheenginewhichisusedinfarmtractors.	BT-2	Understanding
2.	Explaintheconstructionaldetailsofstartingsystem.	BT-4	Analyzing
3.	What is the function of a governor in tractor? Classify the governingsystems.Withaneatsketchexplaintheworkingofacentrifugalgovernor.	BT-2	Understanding
4.	Brieflyexplainaboutthe startingsystemusedinfarmtractorengine.	BT-3	Applying
5.	Write the difference between the air cooling and water cooling system.	BT-2	Understanding

UNITIII:SYSTEM APPROACH			
System approach in farm machinery management and application of programming techniques to the problems of farm power and machinery selection.			
PARTA			
Q.No.	**Questions**	**BT Level**	**Competence**
1.	Whatarethefunctionsoftransmission systeminatractorengine?	BT-2	Understanding
2.	Whatarethevarious componentsin transmissionsystem?	BT-2	Understanding
3.	Examinetheimportance ofclutchinpowertiller.	BT-3	Applying
4.	Whatarethe purposeof clutch?	BT-2	Understanding
5.	Whatarethetypesof clutch?	BT-1	Remembering
6.	Listout thebasic functions ofagearbox.	BT-1	Remembering
7.	Whataretheimportance's of slidingmesh gearbox?	BT-1	Remembering
8.	Whatistheprimary functionofconstant meshgearbox?	BT-2	Understanding
9.	Pointouttheimportanceofsynchro meshgearbox.	BT-4	Analyzing
10.	Whatisthecommonplyratingoftyresusedin agricultureoperations?	BT-6	Creating
11.	WhatisPTO?Mentionitsapplications.	BT-4	Analyzing
12.	Writeanoteon tread andretreading ofatyre.	BT-1	Remembering
13.	Whatarethedifferenttypesof Brakesystemusedintractor?	BT-2	Understanding
14.	Showthefunctionsof brakelining.	BT-3	Applying
15.	Whataretheimportance'sofabraking system?	BT-2	Understanding
16.	Criticizethecausesofpoorbrakes.	BT-5	Evaluating
17.	Whatarethefunctions ofbrakeshoe?	BT-1	Remembering
18.	Givetheadvantagesof discbrake.	BT-2	Understanding
19.	Whatis thepurposeofsteering linkage?	BT-1	Remembering
20.	Whatisknownaspower steering?	BT-2	Understanding
21.	Define differential in automobile.	BT-1	Remembering
22.	Whatarethevarious componentsin differential?	BT-2	Understanding
23.	What are the advantages of differential in vehicle?	BT-2	Understanding
24.	Define front axle in automobile?	BT-1	Remembering
25.	Why the wheel alignment most important in automobile?	BT-1	Remembering

		PART-B		
Q.No	**Questions**		**BT Level**	**Competence**
1.		Explain the principle of operation of a clutch and discuss thesingleplateand multi plateclutch systems in detail.	BT-4	Analyzing
2.	a.	Whataretherequirements oftheclutch?(6)	BT-3	Applying
	b.	Explainaboutcentrifugalclutch.(7)		
3.		Asingleplatefrictionclutchwithbothsideseffectiveistotransmit15kWat2,000rev/min.Theaxialpressureislimitedto 0.1 N/mm². If the outer diameter, of the friction lining is 1.5timestheinnerdiameter.Findtherequiredouterandinnerdiameters of the friction lining. Assumes uniform wear conditions.Thecoefficientof friction maybetakenas 0.3.	BT-4	Analyzing
4.		Listthealltypes ofgears in tractorandexplain anytwotypes withneatsketch.	BT-1	Remembering
5.		Writeshortnotesonthe principleofgearing.Howisthefinalgearreduction in tractorarrived?	BT-4	Analyzing
6.		Discusshow asteering systemin atractor workswith ahelp of diagram.	BT-2	Understanding
7.		Explainthesteeringmechanismoftractor.	BT-4	Analyzing
8.		Illustratetheworkingofdifferentialwithneatsketches.	BT-3	Applying
9.		Explainbrieflythedifferenttypesofdifferentialusedintractor.	BT-2	Understanding
10.	a.	Discusstheneed of gearbox. (6)	BT-2	Understanding
	b.	Expressaboutslidingmeshgearbox. (7)		
11.	a.	Briefaboutconstantmeshgearbox. (6)	BT-3	Applying
	b.	Explainindetailaboutsynchromesh gearbox. (7)		
12.		Describe the construction and operation of power steering withneatsketch.	BT-1	Remembering
13.		Discusstheworkingprincipleofbrakesystemintractorwithsketch.	BT-2	Understanding
14.		Explainindetailthedifferenttypesof brakeswithneatdiagram.	BT-4	Analyzing
15.		Explain the functions of front axle in farm tractors.	BT-4	Analyzing
16.		Explain the construction and components of front axle in farm tracors.	BT-4	Analyzing
17.		Explain the types of front axle with neat sketch.	BT-2	Understanding

18.		Explain the working principle of hydarulic braking system.	BT-2	Understanding

PART-C			
1.	Explainthecommontroublesencounteredingearboxesandsuggest suitableremedies.	BT-6	Creating
2.	A sliding mesh type of gear box with forward speeds only is to bedesigned.Thegearboxshouldhavethefollowinggearratiosavailable approximately: 1.0, 1.5, 2.5 and 3.9. the center distancebetween the lay shaft and the main shaft is 78 mm and the smallestgear is to have at least 16 teeth with a diametric pitch of 3.25 mm.calculatethenumberofteethofthevariousgearsandtheexactgear ratiosthusavailable.	BT-4	Analyzing
3.	Make a detailed comparison of various types of transmissionsystemsused in farm tractors	BT-4	Analyzing
4.	Discusstheprincipleofoperation,components,functionsandadv antagesof acombineharvester.	BT-2	Understanding
5.	Discus the comparison between the drum brake and disc brake.	BT-2	Understanding

UNITIV- PLANNINGOF MACHINERY

Time and motion study, Man-machine task system in farm operations, planning of work system in agriculture, Computer application in selection of power units and to optimize mechanization system.

PARTA

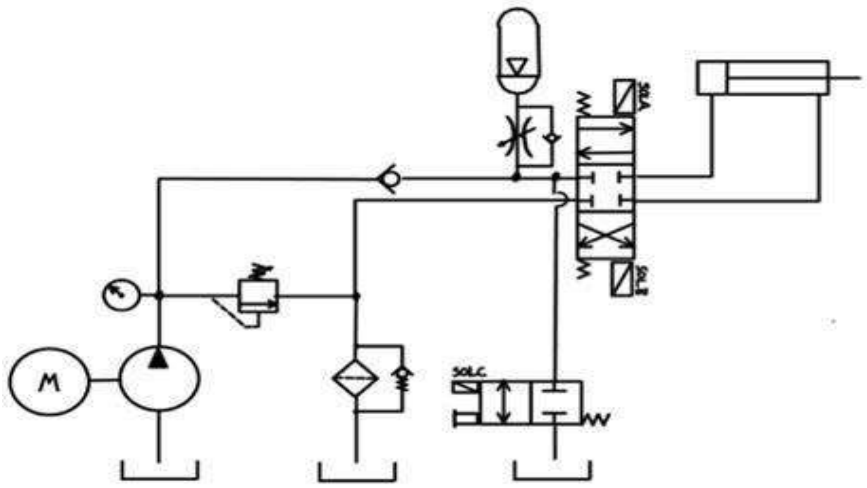
Q.No.	Questions	BT Level	Competence
1.	Whatarethefour primaryfunctionsofhydraulicsysteminfarm tractors?	BT-2	Understanding
2.	List thebasiccomponentsofhydraulicsystem.	BT-1	Remembering
3.	Classifypump.	BT-3	Applying
4.	Givefew propertiesof hydraulicfluidshould possess.	BT-1	Remembering
5.	Whymusta hydraulicfluidhavegoodlubricatingability?	BT-6	Creating
6.	Whattypeof fluidis moregenerallyused totransmit powerin hydraulicsystem?	BT-2	Understanding
7.	Whatispositivedisplacementpump?	BT-2	Understanding
8.	In whatwaysdoespositivedisplacementpumpdiffer fromacentrifugal pump?	BT-6	Creating
9.	Whatis the useofthreepoint linkage?	BT-1	Remembering
10.	Whatarethefunctionsofan accumulator?	BT-1	Remembering
11.	Definetractiveefficiency.	BT-1	Remembering
12.	Whatistheconditionfor frontwheel toleavethe groundasper traction theory?	BT-4	Analyzing
13.	A3x30cmploughismovingataspeedof4km/h.Calculatehow muchtimeittaketoplough500x500mfieldwhenthefieldefficiencyis 70%?	BT-4	Analyzing
14.	Howistheeffectivefield capacityof afarm machinecalculated?	BT-6	Creating
15.	Whatismeantbyvehiclestability?	BT-1	Remembering
16.	Definepositioncontrol	BT-1	Remembering
17.	Whytractioncontrolis importantinfieldfarming?	BT-6	Creating
18.	Givethefunctionsof anintensifier.	BT-2	Understanding
19.	Howwillyouevaluatethevisibilityfactorsfor agricultural tractor operators?	BT-5	Evaluating

20.	Givevariousapplicationcircuits usinghydraulicsystems.	BT-2	Understanding
21.	Classify flow control valve.	BT-1	Remembering
22.	Draw the neat sketch about 2 way and 3 way directional control valve.	BT-1	Remembering
23.	List the properties of fluid used in the hydraulic systems.	BT-1	Remembering
24.	Types of cylinders used in basic hydraulic systems.	BT-2	Understanding
25.	Classify the filter and its application used in hydraulic systems.	BT-2	Understanding

		PART–B		
Q.No		**Questions**	**BT Level**	**Competence**
1.		Explaintheworkingof hydraulicsysteminatractorwithaneat sketch.	BT-4	Analyzing
2.		Expressabouttheworkingofvariouscomponentsofhydraulic systeminatractorwitha neatdiagram.	BT-2	Understanding
3.		Explainvarioustypesofhydraulicsystemwithneatsketches.	BT-4	Analyzing
4.		Discussaboutthreepointlinkageusingneatdiagram.	BT-2	Understanding
5.		Briefabouthydraulicsteeringsystemwithsuitablesketch.	BT-4	Analyzing
6.	a.	Explainthefollowing Positioncontrol (7)	BT-4	Analyzing
	b.	Draftcontrol (6)		
7.		Explainabouthydraulic brakeswith suitablediagram.	BT-4	Analyzing
8		Totaldraftoffourbottom,35cmMBploughwhenploughing18cm deep at 5 kmph speed is 1600 kg. (i) Calculate the unit draft inkg/cm²(ii)Whatisactualpowerrequirement?(iii)Ifthefield efficiencyis75% whatisthe rateofdoing workinha/h.	BT-4	Analyzing
9.		Discussthetroubleshootingintractorcomponentstheircausesand remediesunderhydraulic systemdiscfunctioning.	BT-2	Understanding
10.		Whatarethecomponentsinhydraulicsystemofa bulldozer? Explainitwithneatsketch.	BT-3	Applying
11.		Whatdoyoumeanbydraft?Writeformulaforcalculationofdraft.Whataret he factors affecting the draft?	BT-2	Understanding

12.		Explainabout maintenanceand repairof hydraulicsystem.	BT-4	Analyzing
13.		Discussabouttractive efficiencywithsuitableparameters.	BT-2	Understanding
14.		Explainaboutoperatorseatingarrangementwith neatsketch.	BT-4	Analyzing
15.		List and explain about the trouble shooting for the pump in the hydraulic systems	BT-4	Analyzing
16.		List and explain possible problem causes and remidy for pump in the hydarulic system	BT-2	Understanding
17.		List and explain possible problem causes and remidy for cylinder in the hydarulic system	BT-4	Analyzing
18.		List and draw the hydraulic symbols used in the hydraulic system.	BT-2	Understanding

PART-C

1.	A four-wheel tractor is plowing up a hill of 15° slope with three bottom 35cm mould board plow at a speed of 4 km/hr. The tractor weighting 1590 kghas a wheel base of 240 cm and wheel trade of 115 cm. The C.G. is located90 ahead of rear axle and 75 cmabove the ground. The drawbar heightis40 cm. The line of pull of the implement makes an angle of 25° with theground and is at a distance of 50 cm from the rear wheel contact point.Neglect rolling resistance. Assume: Cohesion coefficient = 0.15, Contactarea =1650 cm², Angle ofinternal friction =30°.Find: (i) Reactionatthewheel (5) (ii) Pull (5) (iii) Tractiveforce. (5)	BT-4	Analyzing
2.	DiscussabouttheMechanicsofthe tractorchassiswithpropersketches.	BT-2	Understanding
3.	Explainaboutthefollowinghydraulic circuit. 	BT-6	Creating

4.	Howwillyouevaluatetractionparameters? Give onesuitableexample.	BT-5	Evaluating
5.	Explain the Fault finding procedure by using troubleshooting charts.	BT-5	Evaluating

UNITV:ECONOMIC ANALYSIS

Energy conservation - performance and power analysis - cost analysis of machinery -fixed cost and variable costs, effect of inflation on cost; selection of optimum machinery and replacement criteria-Break-even analysis, reliability and cash flow problems; mechanization planning

PARTA

Q.No.	Questions	BT Level	Competence
1.	Differentiatetractsandtyresinabull dozer.	BT-2	Understanding
2.	Whatarethemobilesourcesof farmpower?	BT-2	Understanding
3.	Howdoes abulldozer work?List down its parts.	BT-4	Analyzing
4.	Explainshortlythetypes ofpowertillers.	BT-4	Analyzing
5.	Whatdoyoumeanbyconservationtillage?	BT-2	Understanding
6.	Whatarethedifferent methodsofthreshing thefoodgrains?	BT-1	Remembering
7.	Draw andmarkthepartsofanyprimarytillageequipment.	BT-4	Analyzing
8.	PowertillerisadvantageousoverTractor.Justify whenandhow?	BT-6	Creating
9.	Nameanytwo applicationsofBulldozerinagriculture.	BT-1	Remembering
10.	Whatarethedifferenttypesofthreshersusedinagriculturebased onpowerusage?	BT-1	Remembering
11.	Writethetwodistinct featuresofpowertiller.	BT-2	Understanding
12.	Listthetypesofharrows.	BT-1	Remembering
13.	Writethedifferenttypesoftillage.	BT-2	Understanding
14.	Writetheregularmaintenanceoftractorafter8 hoursofwork.	BT-2	Understanding
15.	Whatismulchtillage?	BT-1	Remembering
16.	Whatismeantbyzerotillage?	BT-1	Remembering
17.	Whatarethecomponentsofpowertiller?	BT-3	Applying
18.	Whatarethemajorpartsofcombineharvesters?	BT-2	Understanding
19.	HowthedepreciationofmachineryiscalculatedusingStraightLine method?	BT-4	Analyzing
20.	Listanytwoequipment forseedingandplanting.	BT-1	Remembering
21.	Explain the types of power tillers.	BT-2	Understanding
22.	How Tractors are helpful in Agriculture?	BT-1	Remembering
23.	What is the purpose of Power tillers in Agriculture?	BT-2	Understanding

24.	What is bulldozer?	BT-2	Understanding
25.	What are the components presents in the dozer.	BT-1	Remembering

		PART-B		
Q.No		**Questions**	**BT Level**	**Competence**
1.		A flywheel type of chaff cutter has 2 cutting blades andflywheel rotates at600rpm. The widthand theheight ofthethroatare300mmand100mmrespectively.Thedensityoftheforageinthethroatis100kg/m³.Thedesiredtheoreticallength ofcutofthechaffis10mm. Whatisthetheoreticalcapacityofthechaff cutter?	BT-4	Analyzing
2.		Brieflydiscussthefactors influencing theperformanceof a thresher.	BT-2	Understanding
3.		Discussthespecialfeatures ofbulldozersandtheirmerits.	BT-2	Understanding
4.		CompareandcontrastTractorsandPowertillersinvarious dimensions.	BT-4	Analyzing
5.		Explainthediscplough, tiltangleanddiscanglewithneat sketches.	BT-4	Analyzing
6.		Discussthevariousforcesactinguponatillageimplement?	BT-2	Understanding
7.		Discusstheuseofpower tillerinagriculturaloperations.	BT-2	Understanding
8.		Writeabout clutchused in powertiller withneat sketch.	BT-2	Understanding
9.		Explaintheoperationprincipleandcomponentsofharvestingequipment.	BT-4	Analyzing
10.		Explaintheworkingofabulldozerwithitsbasic parts.	BT-4	Analyzing
11.		What are the different types of bulldozer? Explain theirworkingprinciple.	BT-1	Remembering
12.		Writeindetailthespecialfeaturesofpower tillers.	BT-1	Remembering
13.		Discussthead vantagesofpowertillers.	BT-2	Understanding
14.	a.	Explainprimaryandsecondarytillage. (7)		

	b.	Listdown theimplements used forboth thetillageand explain them briefly. (6)	BT-1	Remembering
15.		What are the test carried out while selecting the tractor	BT-2	Understanding
16.		Explain the bulldozer parts and their functions.	BT-4	Analyzing
17.		Write briefly what are the operations performed by the bulldozer.	BT-4	Analyzing
18.		Explain details about the evaluation of tractors.	BT-1	Remembering

PART-C				
1.	a.	Discusstheprincipleofoperation,components,functionsandadvantagesofa combineharvester. (7)	BT-2	Understanding
	b.	A bullock drawn desi plough working at 2.4 kmph cuts soil10cm deep and makes 20 cmwide furrowat thetop. Calculatethevolumeofsoil handled in3 hours. (8)	BT-4	Analyzing
2.		Explaintheimportanceof periodicmaintenanceof the tractor.	BT-3	Applying
3.		Writeaboutthecommontroublesoftractor engineandtheir remedies.	BT-2	Understanding
4.		Discussindetailabouttheinterculturalimplementsand harvestingimplements.	BT-2	Understanding
5.		Explain the salient features of bulldozer.	BT-4	Analyzing