TELANGANA STATE BOARD OF INTERMEDIATE EDUCATION
VOCATIONAL COURSES

MECHANICAL ENGINEERING (322)
PRACTICAL QUESTION BANK

FIRST YEAR

1. **WORKSHOP PRACTICE, PAPER-I, (322/21)**
2. **ENGINEERING DRAWING, PAPER-II (322/22)**
3. **INDUSTRIAL ROBOTICS LAB, PAPER-III (322/23)**

SECOND YEAR

1. **ENERGY SOURCES**

&

LIGHT MOTOR VEHICLES LAB, PAPER-I, (322/71)

2. REFRIGERATION
AND
AIR CONDITIONING LAB,PAPER-II,(322/72)

3.ARDUINO PROGRAMMING LAB, PAPER-III (322/73)

MECHANICALENGINEERINGFIRS TYEARPRACTICAL,PAPER-IWORKSHOPPRACTICE(322/21)QU ESTIONBANK

Time:3hrs Max.Marks:50

Section-I 1X20=20

1. Prepare“L”sectionwithgivenflatinfitting shop.
2. Makearectangulartraywithagivensheetmetal.
3. Makestepturningongivenworkpiecebylathemachine.
4. Makeroundbarwithagivensquarebar.
5. Makea“T”Jointwiththe giventwopiecesby ArcWelding.

Section-II 1X10=10

6. IdentifythegivenArcWeldingequipment.
7. Performthesettingofgasweldingflames.
8. Performthesurfacegrindingonthe givenworkpiece.
9. Makeaplaneturningonthe givenworkpiecebyLathemachine.
10. Jointhegiven twometalsheetsbysoldering.

Section-III 1X10=10

11. Writetheusesof:TrySquare,TailStock,Tong,Snip,andWeldingElectrode.

12. Writethepurposeof:Dyeing,knurling,chiseling,soldering,andwelding.

13. Writethetypesof:Taps,Turningoperations,Forginghammers,sheetmetalsandfour weldingjoints.

14. Writethemaindifferencebetween:DrillingandBoring,ThreadingandKnurling,Inter nalandExternalGrinding,HammerandMallet,Lap Jointand ButtJoint.

15. Writethepartsof:File,LatheMachine,DrillingMachine,AnvilandStake.

Record: 5Marks.
Viva-voce: 5Marks.

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MECHANICALENGINEERINGFIR STYEARPRACTICAL,PAPER-I: WORKSHOPPRACTICE(322/21)M ODELQUESTIONPAPER

Time:3hrs Max.Marks:50

4,7,12

Note:-

Theserialnumbersofthequestionsmentionedabovearetheserialnumbersinquestionbank.Inpracticalexaminationonlytheserialnumberofthequestionswillbegiven.Thequestionsgivenbythe TSBIEarefor40marks.Theexaminershalldecodeitwiththequestionbankand givethe questions.

Record 5Marks.

Viva-voce 5Marks.

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MECHANICALENGINEERING

FIRSTYEARPRACTICAL,PAPER-II

ENGINEERINGDRAWINGUSINGAUTOCAD (322/22)

QUESTIONBANK

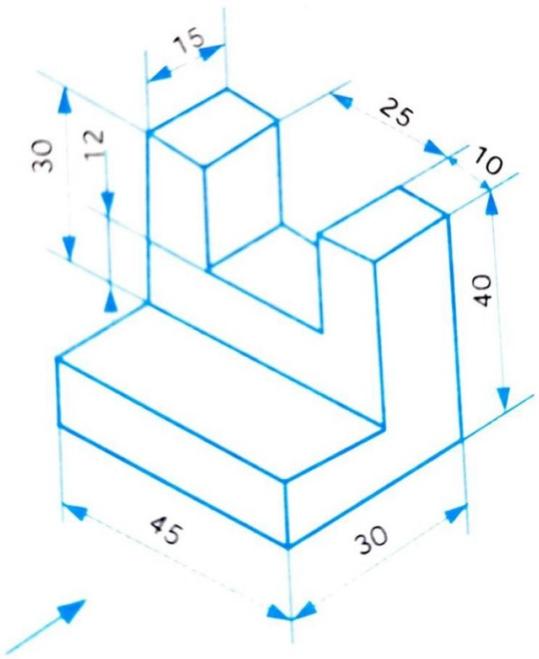
Time:3hrs Max.Marks:50

Section-I 1X20=20

1. Modela2degreesoffreedomRRplanarmanipulatorwithanendeffecterusingAutocad.
2. Modela3degreesoffreedomCartesianmanipulatorwithanendeffecterusingAutocad.
3. Modela3degreesoffreedomArticulatedmanipulatorwithanendeffecterusingAutocad.
4. Modela3degreesoffreedomArticulatedwristwithanendeffecterusingAutocad.
5. ModelaPUMArobotwithanendeffecterusingAutocad.

Section-II 1X10=10

6. Drawtheorthographicviewsofanobjectgivenbelowin FirstorThirdangleprojectionusingAutocad.



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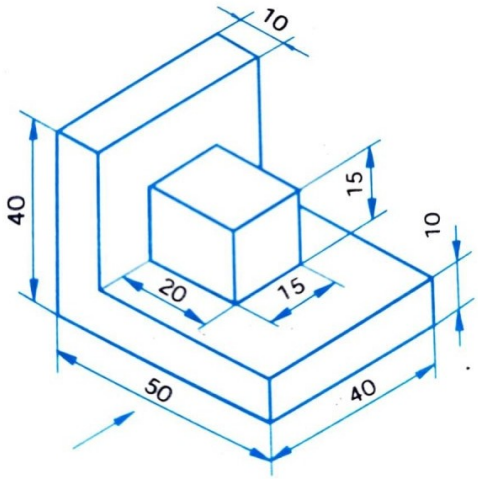
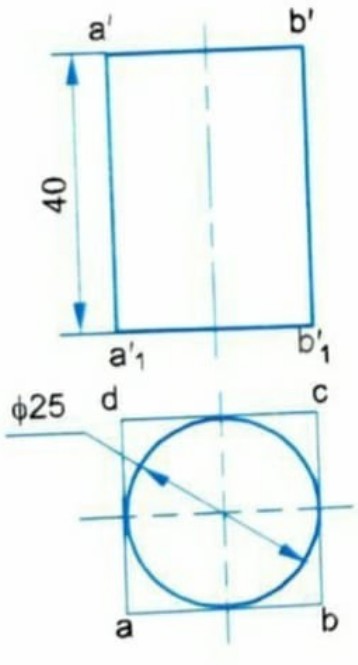
7. Drawtheorthographicviewsofanobjectgivenbelowin FirstorThirdangleprojectionusingAutocad.



8. DrawtheIsometricdrawingofaCylinderofbasediameter25mmandaxis40mmlongusingAutocad.



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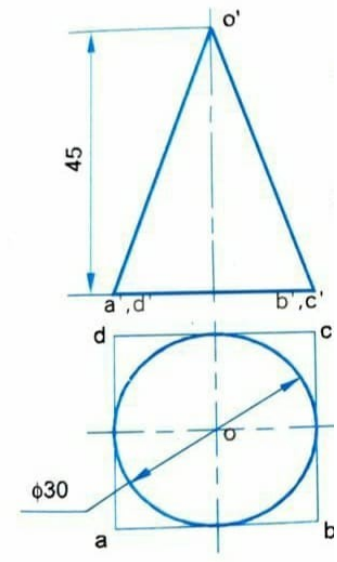
9. DrawtheIsometricdrawingofaConeofbasediameter30mmandaxis45mmlong usingAutocad.



10. AConeofbase50mmdiameterandaxis70mmlong,liesonitsbaseonH.P.Asectionplaneparalleltoh.P.passesthroughtheaxisatapoint40mmfromthebase.Drawtheprojectionsofthe remainingconeusing Autocad.

Section-III 1X10=10

11. Writeaboutthe:a)AdvantagesofCAD
    b) DisadvantagesofCAD.
12. Writeaboutthe:a)UtilitiesofAutocadsoftwareinEngineering
    b) BasicinitialsettingofAutocadinterface.
13. Writethelistof:a)Any10toolbarnames
    b) Someofthebasicentitiesin2D.
14. Writeaboutthe:a)Absoluteco-ordinate system
    b)Relativeco-ordinatesystem.
15. Writeaboutthe:a)Mirror command
    b) Extendcommand.

Record 5Marks.
Viva-voce 5Marks.

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MECHANICALENGINEERINGFIRST YEARPRACTICAL,PAPER-II
ENGINEERINGDRAWINGUSINGAUTOCAD(322/22)M
ODEL QUESTIONPAPER

Time:3hrs Max.Marks:50

4,7,12

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Record 5Marks.
Viva-voce 5Marks.

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MECHANICALENGINEERINGFIRST YEARPRACTICAL,PAPER-IIIINDUSTRIALROBOTICSLAB(322/23)
QUESTIONBANK

Time:3hrs Max.Marks:50

Section-I 1x20=20

1. BuildandsimulateanArticulatedrobotwithanendeffectorsusingRoboDK/Robo Analyzer opensourcesoftware.
2. BuildandsimulateaSCARArobotwithawristusingRoboDK/RoboA nalyzeropensourcesoftware.
3. Simulateapickandplace operationusingRoboDK/RoboAnalyzeropen-sourcesoftware.
4. Buildandsimulaterobotspraypaintingoperationusing RoboDK/RoboA nalyzeropensourcesoftware.
5. Buildandsimulaterobot3DprintingoperationusingRoboDK/ RoboAnalyzeropensourcesoftware.

Section-II 1x10=10

6. Toconnectanddemonstratetheusageoftiltsensorusing Tinkercaddopen sourcesoftware.
7. Toconnectanddemonstratetheusageofforcesensorusing Tinkercaddopen sourcesoftware.
8. BuildacircuitforopendooralarmmechanismUsingCretileVoyagerkit.
9. BuildacircuitforoperatinganautomaticwatertapUsingCretileVoyagerkit.
10. BuildacircuitforoperatingawiredRobot.

Section-III 1x10=10

11. WritebrieflyabouttheDegreesofFreedom.
12. WritebrieflyabouttheGrippers.
13. WritebrieflyabouttheEndEffectors.
14. Listthetoolsusedwithrobotsinplaceof EndEffectors.
15. Listthegeneralapplications ofRobots.

Record: 5Marks
Viva-Voce: 5Marks

MECHANICALENGINEERINGFIRST YEARPRACTICAL,PAPER-IIIINDUSTRIALROBOTICSLAB(322/23)
MODELQUESTIONPAPER

Time:3hrs Max.Marks:50

4,7,12

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Record: 5Marks
Viva-voce: 5Marks

ListofParticipants

1	**Dr.D.RajiReddy,JLinMech.Engg.**	**GJCGajwel**
2	**J.DurgaPrasad, JLinMech.Engg.**	**GJCKarepally**

MECHANICAL ENGINEERING
SECOND YEAR PRACTICAL, PAPER-I (322/71)
ENERGY SOURCES & LIGHT MOTOR VEHICLES LAB.
QUESTION BANK

Time : 3 hours Max. Marks: 50

Section-I 1 x 20=20.

1. Dismantling and assembling the given Solar Cooker.
2. Study of Thermosiphon (Natural circulation) system in a water heater.
3. Study of horizontal axis double blade wind mill.
4. Overhaul the Petrol engine fuel feed system.
5. Overhaul the Carburettor in the given vehicle and perform the necessary adjustment.

Section-II1 x 10=10.

6. Study of Solar distillation.
7. Study of Solar Street light.
8. Inspect and adjust the given steering system.
9. Overhaul the given mechanical brake system.
10. Study the given lubrication system of given vehicles.

Section-III 1 x 10=10.

11. Identify the parts of solar water pumping system.
12. Identify the parts of vertical axis Darrius rotor wind mill.
13. List the major assemblies of a given vehicle.
14. Identify the parts of Transmission system.
15. Identify the parts of Hydraulic braking system.

Record: 5 Marks
Viva-voce: 5 Marks.

MECHANICAL ENGINEERING
SECOND YEAR PRACTICAL, PAPER-I (322/71)
ENERGY SOURCES AND LIGHT MOTOR VEHICLES LAB.
QUESTION BANK

Time : 3 hours Max. Marks: 50

4,7,12

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Record: 5 Marks

Viva-voce: 5 Marks.

MECHANICAL ENGINEERING
SECOND YEAR PRACTICAL, PAPER-II (322/72)
REFRIGERATION AND AIR CONDITIONING LAB.
QUESTION BANK

Time : 3 hours Max. Marks: 50

Section-I 1 x 20=20.

1. Service of the given Water cooler.
2. Service of the given Refrigerator.
3. Service of the given Air Cooler.
4. Service of the given Split-Air Conditioner.
5. Service of the fans used in given Air Conditioner.

Section-II 1 x 10=10.

6. Study the given Window type Air conditioner.
7. Study the air out-lets in given Air Conditioning.
8. Study the given cold- storage plant.
9. Study the given Ice plant.
10. Study the given Central Air –Conditioning system.

Section-III 1 x 10=10.

11. Identify the parts of house hold refrigerator.
12. List the tool-kit used for Refrigerator.
13. Identify the parts ofa Compressor.
14. List the different types of Refrigerants.
15. Sketch and identify the parts of Capillary Tube.

Record – 5 Marks
Viva-voce – 5 Marks.

MECHANICAL ENGINEERING
SECOND YEAR PRACTICAL, PAPER-II (322/72)
REFRIGERATION AND AIR CONDITIONING LAB.
QUESTION BANK

Time : 3 hours Max. Marks: 50

4,7,12

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Record: 5 Marks

Viva-voce: 5 Marks

MECHANICAL ENGINEERING
SECOND YEAR PRACTICAL, PAPER-III (322/73)
ARDUINO PROGRAMMING LAB.
QUESTION BANK

Time : 3 hours Max. Marks: 50

Section-I 1 x 20=20.

1. Create a Word Document and save the file- Write procedure.
2. Create a folder, rename, searching, delete, copy and move – Write procedure.
3. Write a program to find average of given N numbers – Write procedure.
4. Write a program to find area and circumference of circle – Write procedure.
5. Write a program to find greatest among the given three numbers – Write procedure.

Section-II 1 x 10=10.

6. Identify the functional units of Arduino- Write procedure.
7. Control a given LED with push button using Arduino microcontroller- Write procedure.
8. Draw the schematic of a stepper motor with Arduino – Write procedure.
9. Interface the Piezo buzzer with Arduino as alarm- Write procedure.
10. Interface the Servo motor with Arduino- Write procedure.

Section-III 1 x 10=10.

11. Identify the components of a computer.
12. Identify the parts in an Arduino board.
13. Identify the parts in blinking LEDs circuit board.
14. Identify the parts in a smoke sensor.
15. Identify the parts in fading LEDs circuit board.

Record: 5 Marks
Viva-voce: 5 Marks

MECHANICAL ENGINEERING
SECOND YEAR PRACTICAL, PAPER-III (322/73)
ARDUIO PROGRAMMING LAB.
QUESTION BANK

Time : 3 hours Max. Marks: 50

4,7,12

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Record: 5 Marks

Viva-voce: 5 Marks.

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List of participants.

1	Dr.D.RajiReddy,JLinMech.Engg.	GJC,Gajwel
2	J.DurgaPrasad,JLinMech.Engg.	GJC,Karepally

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