No. of Printed Pages : 4 220331
Roll No. .....

3rd Sem. / Automobile Engg., Mechanical Engg,.

Subject : Strength of Materials

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 Unit of shear strain-

a) N-m b) $N-m^3$

c) N/m d) No unit

Q.2 A beam having both ends freely resting on supports is called

a) Cantilever Beam

b) Simply supported Beam

c) Overhanging Beam

d) Fixed Beam

Q.3 Rankine's Constant for Wrought Iron is

a) 1/9000 b) 1/5000

c) 1/7500 d) 1/6000

Q.4 In springs balance, the spring is used

a) to apply forces

b) to measures forces

c) to absorb shocks

d) to absorb strain energy

Q.5 The shear stress is maximum at

a) anywhere inside the shaft

b) outer surface of the shaft

c) axis of the shaft

d) None of the above

Q.6 At point of contraflexure

a) Bending moment is maximum

b) Bending moment is minimum

c) Bending moment is zero

d) None of the above

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 State the relation between Bulk Modulus (K) and Modulus of Elasticity (E).

Q.8 Define Ductility.

Q.9 The S.I. unit for second moment of area is

Q.10 Full Form of S.F.D. is_____.

Q.11 Define Pure Torsion.

Q.12 Define Open coiled helical Spring.

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Mention various types of stains.

Q.14 Draw stress-strain curve for a ductile material say mild steel.

Q.15 Define:

a) Resilience

b) Proof Resilience

Q.16 State and explain theorem of parallel axis.

Q.17 Define sagging and hogging in bending of beams.

Q.18 State four assumptions in theory of pure torsion.

Q.19 A member of a pin-jointed structure is 1.5mm long with a cross-section of 10mm X 25mm. Find the loas at which it will buckle. Take E for the material of member 70GPa.

Q.20 A solid shaft 60mm diameter and 900mm long transmits 40KW at 250rpm. Calculate maximum shear stress induced in the shaft. Take G=90GPa for the material of member.

Q.21 What do you understand by springs in series.

Q.22 Define:

a) Strut

b) Equivalent length of column

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Derive Torsion Equation for a solid shaft.

Q.24 A simply supported beam of span 6m carries a U.D.L. of 3KN/m starting from a point at a distance of 3m from the left-hand support. Draw S.F.D. and B.M.D. for the given beam.

Q.25 Define:

a) Stiffness

b) Limit of proportionality

c) Percentage elongation

d) Working Stress

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3rd Sem / AUTOMOBILE,MECHANICAL ENGG, MECHANICAL (TOOL & DIE DESIGN)

Subject : Work Technology - II

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 Thermit welding is a form of

a) Fusion welding b) Gas welding

c) Arc welding d) All of the above

Q.2 Which gases are used in T.I.G welding.

a) Argon & Helium

b) Argon & Neon

c) Oxygen & Acetylene

d) None of these

Q.3 An expendable pattern is used in

a) Slush Casting b) Investment casting

c) Squeeze Casting d) Centrifugal Casting

Q.4 Quick return mechanism is used in

a) Milling machine b) Shaper machine

c) Drilling machine d) All of the above

Q.5 Up milling is also called

a) End milling

b) Cylnderical milling

c) Both A&B

d) Conventional milling

Q.6 Bushes are generally provided in jig to

a) Locate the job b) Guide the tool

c) Hold the job d) All of the above

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 In cupola furnace low grade coal/ fuel is used. (True/False)

Q.8 What are non consumable electrodes?

Q.9 Vice jaw fixture is used for machining small parts.(True/False.)

Q.10 In machining of cast iron _____cutting fluids is required.

Q.11 _____Point cutting tool is used in planer machine.

Q.12 In gas welding the ratio of oxyacetylene 2.5:1 then flame will be_____.

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 what are the safety precautions to be taken during arc welding?

Q.14 Give advantages of jigs and fixtures.

Q.15 What is the difference between Shaper and Slotter.

Q.16 Draw the diagram of horizontal Broaching machine and label its parts.

Q.17 Explain the function of a pattern.

Q.18 Writes any five properties of cutting tool materials.

Q.19 Explain quick return mechanism with diagram.

Q.20 Name any five operations performed on milling machine.

Q.21 Write important characteristics of natural sand.

Q.22 What are the advantages of M.I.G. welding?

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Explain with neat sketch, construction and working of cupola furnace.

Q.24 Explain in details the principle parts of Planer machine with neat diagram.

Q.25 Explain any eight welding defects.

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3rd Sem. / Automobile, Mech. Engg. /Mechanical (Tools & Die Design)

Subject : Basics of Electrical & Electronics Engineering

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 Unit of Impedance is (CO2)

a) ohm b) tesla
c) hertz d) weber

Q.2 The power factor at resonance in ric circuit is (CO1)

a) 0 b) 1
c) 2 d) infinite

Q.3 Frequency of dc is (CO1)

a) zero b) 230hz
c) 440hz d) infinite

Q.4 The device which convert ac into dc is (CO1)

a) substation b) stabilizer
c) rectifier d) transformer

Q.5 Expand RMS value (CO2)

a) read mean square b) ram mean square
c) road mean square d) root mean square

Q.6 An induction motor convert (CO5)

a) mechanical to electronics energy
b) electronics to mechanical
c) electrical to mechanical
d) mechanical to electrical

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Define average value of AC. (CO1)

Q.8 What is the full form of MMF. (CO3)

Q.9 In circuit voltage is measured by _____ (CO1)

Q.10 The current which does not change its direction is known as _____current (CO1)

Q.11 Define AC (CO1)

Q.12 Earthing is than to prevent _____ to the user. (CO2)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Explain kirchoffs current law (CO2)

Q.14 Explain ideal current source. Draw its vi characteristics. (CO2)

Q.15 Distinguish between conductor insulator and semi conductor on the basis energy band diagram (CO7)

Q.16 Draw and explain vi characteristics of PN junction diode. (CO7)

Q.17 Diffrentiate between AC and DC (CO1)

Q.18 List five disadvantages of low power factor (CO2)

Q.19 Define the following and state their units (CO2)

a) Electrical energy b) Electrical power

Q.20 Write short note of falme proof motor (CO5)

Q.21 State the different between phase wire neutral wire earth wire (CO4)

Q.22 Give five differences between MCB & ELCB (CO6)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Describe working of transformer with the help of suitable diagram. What are the various types of loses in transformer? (CO3)

Q.24 Explain the function of emitter base and collector of in operation junction transistors ? (CO7)

Q.25 Describe construction and working principal of single phase induction motor (CO5)

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3rd Sem / Mechanical Engg., Mechanical
(Tool & Die Design)

Subject : Mechanical Engineering Drawing - II

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 What type of connection is coupling?

a) Permanent connection
b) Temporary connection
c) It can't connect
d) A connection which can be modified

Q.2 The relation between mating parts is called_____

a) Connection b) Fits
c) Joints d) Link

Q.3 A_____ bearings supports the load acting along the axis of the shaft.

a) Thrust b) Radial
c) Longitudinal d) Transversal

Q.4 With the use of Jigs and fixtures total cost of production

a) Increases b) Decreases
c) Remains same
d) Jigs are not related to production process

Q.5 Which of the following is not true about gears?

a) Positive drive
b) Constant velocity ratio
c) Transmit large power
d) Bulky construction

Q.6 Which of the following does not form the important part of the screw jack?

a) Frame b) Nut
c) Cup d) Coupling

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Enlist various Need of limit.

Q.8 Define Shaft basis system.

Q.9 Name the Type of pipe Joints. Explain any one.

Q.10 Minimum interference is the magnitude of the difference between _____ size of the hole and the _____ size of the shaft.

Q.11 Efficiency of conventional power screw is greater than the efficiency of recirculating ball screw

a) True b) False

Q.12 Gear drive don't require precise alignment of shafts

a) True b) False

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Enlist the various advantages of screw jack.

Q.14 Explain the working of blow off cock.

Q.15 What is a pipe joint? Explain it various types.

Q.16 Draw the free hand sketch of a wall bracket.

Q.17 Write a short note on Flanged pipe.

Q.18 Differentiate between the working of Universal coupling and Oldham coupling.

Q.19 Define the following

a) Allowance

b) Deviation

c) upper deviation

d) lower deviation

Q.20 What is a Plummer Block? List it various applications.

Q.21 Draw the free hand sketch of Crank shaft.

Q.22 Explain working of bushed bearing, also write its applications.

SECTION-D

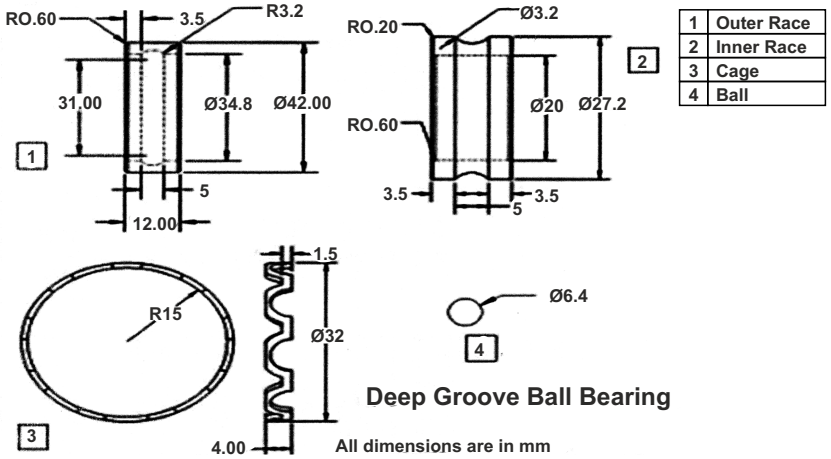
Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Explain Nomenclature of gears with the help of neat sketch.

Q.24 Assemble the Roller Bearing as shown in figure below and draw

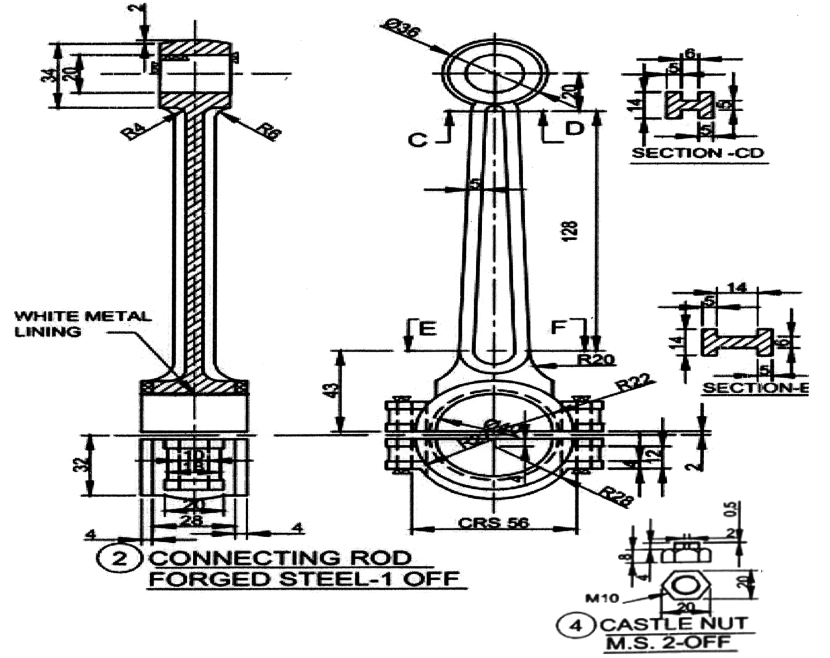
i) Front view

ii) Side view



Q.25 Assemble the Connecting rod as shown in figure below and draw

i) Front view and Bill of material



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221733

3rd Sem / Mechanical Engg.

Subject : Thermodynamics - I

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 Thermodynamics properties of a system are

a) Internal energy, entropy, enthalpy

b) Density, pressure, temperature, volume

c) Botth (a) and (b)

d) Neither (a) nor (b)

Q.2 The normal temperature and pressure are

a) 15deg C and 1.01325 bar

b) 0deg C and 1.01325 bar

c) 0deg C and 0.01325

d) 15 deg C and 0.01325

Q.3 Constant pressure is also known as

a) Isochoric process b) Isobaric process

c) Isothermal process d) Throttling process

Q.4 The entropy of water at 0deg C is assumed to be

a) 1 b) -1

c) 0 d) 10

Q.5 For complete specification of superheated vapour, one needs following properties

a) Pressure

b) temperature and enthalpy

c) Pressure as well as temperature

d) Specific volume

Q.6 An air preheater

a) Enable low grade fuel to be burnt

b) Increases the efficiency of the boiler

c) Increases the evaporative capacity of the boiler

d) All of the above

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 A perfect gas obeys _____ under all condition of temperature and pressure.

Q.8 In adiabatic process, no _____ transfer take place across the system boundary.

Q.9 First law of thermodynamic is based upon law of conservation of energy. (True/False)

Q.10 There are _____ fuel tubes in the lancashire boiler.

Q.11 A carnot cycle consist of two _____ processes and two_____ processes.

Q.12 Centrifugal compressor is a type of_____ compressor.

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Compare Otto cycle and diesel cycle.

Q.14 Explain the following with reference to compressor

a) inlet pressure b) Swept volume

Q.15 Gives the various applications of steam.

Q.16 Explain enthalpy of an ideal gas.

Q.17 Write a short note on heat sink and heat source.

Q.18 Explain in detail the various Specific heats.

Q.19 Drive an expression for heat supplied in isothermal process.

Q.20 Explain the process of formation of steam.

Q.21 Calculate the enthalpy of 1kg of steam at a pressure of 20bar, when its dryness fraction is 0.8.

Q.22 Briefly explain boilers with example.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Differentiate between reciprocating and rotary compressor.

Q.24 Explain the construction and working of Lancashire boiler with the help of neat sketch.

Q.25 Drive a relationship between specific heats Cp and Cv.

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221751

5th Sem./ Mechanical Engg. Mechanical (Tool & Die)
Subject : CNC Machines & Automation

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple Choice Questions. All Questions are compulsory. (6x1=6)

Q.1 In a DNC system

a) Only a single machine tool can be controlled

b) NC machine cannot be controlled

c) Many machine tools can be controlled simultaneously

d) None of these

Q.2 M-Codes are also knows as

a) Preparatory codes b) Spindle speed codes

c) Tool selection codes d) Miscellaneous codes

Q.3 Full form of CIM is

a) Computer Integrated Manufacturing

b) Common Integral Manufacturing

c) Computer Integrated Machine

d) Machine computer universal

Q.4 Which of the following code will give a linear interpolation movement?

a) G00 b) G01

c) G78 d) G65

Q.5 The function of side ways in CNC is to _____.

a) Reduce friction

b) Reduce Wear

c) Improve smoothness

d) All of the mentioned

Q.6 LVDT has got_____ number of windings.

a) 04 b) 02

c) 03 d) 08

SECTION-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Write the full form of NC, CNC and DNC.

Q.8 Define Part program.

Q.9 Define transducer.

Q.10 Define :

i) Opto interupter

ii) Potentiometer

Q.11 AGV stands for _____.

Q.12 Enlist the types of Automation.

SECTION-C

Note: Short answer type Question. Attempt any eight questions out of Ten Questions. (8x4=32)

Q.13 Explain the rules for axis identification in NC machines.

Q.14 What are the common problems found in mechanical components of a CNC machines?

Q.15 Explain cutter radius compensation.

Q.16 Differentiate between Conventional machine and CNC machine.

Q.17 What are the main advantages of LVDT?

Q.18 What are the different types of slide ways? Explain.

Q.19 Explain the type of DNC.

Q.20 Explain any one type of Automated guided vehicles.

Q.21 What is FMS? What are advantages and limitation of FMS?

Q.22 Define law of Robotics.

SECTION-D

Note: Long answer questions. Attempt any two question out of three Questions. (2x8=16)

Q.23 What is robot? Explain in detail the various types of motions and joints in robots.

Q.24 Explain the different formats and basic structure of a part program. explain in detail.

Q25 Define sensors? What are the characteristics and factors should be considered while selecting a sensor?

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221752

5th Sem. Branch: Mechanical
Sub : Refrigeration and Air Conditioning

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice Questions. All Questions are compulsory. (6x1=6)

Q.1 Which of the following belongs to the inorganic group of refrigerants?

a) Propylene b) Ethane

c) Carbon dioxide d) Propane

Q.2 The refrigerant widely used in window air-conditioners is:

a) R-12 b) R-22

c) R-717 d) R-744

Q.3 Air refrigerator works on

a) Carnot cycle b) Reversed carnot cycle

c) Bell-Colema cycle d) Both A & B

Q.4 In a vapour compression refrigeration system, the heat is rejected to the environment by :

a) Evaporator b) Condenser

c) Compressor d) Receiver

Q.5 Natural convection air-cooled compressor are used in

a) Domestic refrigerator

b) Water cooler

c) Room Air-Conditioners

d) All of the above

Q.6 Reversed Carnot cycle consist of

a) Two isentropic processes and two adiabatic processes

b) Two isentropic processes and two isothermal processes

c) Two isentropic process and two isobaric processes

d) Two isentropic processes and two isochoric processes

Section-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 One ton of refrigeration is equal to _____ (in kj/min)

Q.8 Define secondary refrigerant?

Q.9 What is Psychrometry?

Q.10 _____compressor is that in which vapour refrigerant is compressed by the backward and forward motion of the piston.

Q.11 During sensible heating of Air, the specific humidity remains_____.

Q.12 For Saturated air, wet bulb depression is_____.

Section-C

Note: Short answer type Questions. Attempt any eight questions out of ten Questions. (8x4=32)

Q.13 Explain steam jet refrigeration.

Q.14 Explain Bell-Coleman cycle Air refrigerator.

Q.15 Explain the principle parts of a simple vapour compression refrigeration system.

Q.16 Write the advantage and disadvantage of hermitically sealed compressor.

Q.17 Write the properties of an ideal refrigerants.

Q.18 Explain the halide torch method of leakage detection.

Q.19 Explain the cooling and dehumidification process.

Q.20 Explain the installation procedure of air conditioners.

Q.21 Write the advantage and disadvantage of invertor AC.

Q.22 Write the difference between air and water cooled condensers.

Section-D

Note: Long answer questions. Attempt any two questions out of three Questions. (2x8=16)

Q.23 Draw and explain various lines of psychrometric chart.

Q.24 Explain automatic expansion valve with the help of neat sketch.

Q25 Explain Window type air conditioning system with the help of neat sketch. Give its advantages.

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5th Sem. Branch: Mechanical / Mech (T&D)
Sub : Industrial Engineering

Time : 3 Hrs. **M.M. : 60**

SECTION-A

Note: Multiple choice Questions. All Questions are compulsory. (6x1=6)

Q.1 Gantt chart is used for

a) Inventory control b) Material handling
c) Production schedule d) Machine repair schedules

Q.2 Productivity =

a) Input / Output b) Output / Input
c) Output - Input d) Input - Output

Q.3 In time study, the rating factor is applied to determine

a) Standard time of a job
b) Merit rating of the worker
c) Normal time of a worker
d) Fixation of incentive rate

Q.4 Which of the following layouts is suited for mass production

a) Process layout b) Product layout
c) Fixed position layout d) Plant layout

Q.5 In ABC control policy, maximum attention is given to

a) Those items which consume money
b) Those items which are not readily available
c) Those X items which are in more demand
d) Those items which consume more money

Q.6 In value engineering approach, the value of the product is

a) Inversely proportional to its functions and directly proportional to its cost
b) Directly proportional to its functions and Inversely proportional to its cost
c) Directly proportional to its functions as well as its cost
d) Directly proportional to its functions and independent of its cost

Section-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Define production.

Q.8 Give the name of different types of inventory.

Q.9 Define work sampling.

Q.10 Give full form of PPC.

Q.11 Define wages.

Q.12 The difference between actual sales and breakeven point is known a _____.

Section-C

Note: Short answer type Questions. Attempt any eight questions out of ten Questions. (8x4=32)

Q.13 Classify stainless steel in detail.

Q.14 Explain electric are furnace for making of stainless steel.

Q.15 What is role of alloying elements in ferrite and austenite stabilization?

Q.16 Name the properties of different grade of stainless steel and explain any one.

Q.17 What is cold roll forming process? Explain.

Q.18 What is weld decay? Explain causes and remedies.

Q.19 Name any five issues face during fabrication of stainless steel?

Q.20 Explain ultrasonic testing for detecting defects in stainless steel.

Q.21 What is the role precipitates on corrosion?

Q.22 Explain shielded metal are welding with diagram.

Section-D

Note: Long answer questions. Attempt any two questions out of three Questions. (2x8=16)

Q.23 Explain Indequacy Fe-Fe3C diagram for stainless in detail.

Q.24 Explain the phase transformation of stainless steel with neat diagram.

Q25 Explain in detail stress corrosion cracking and how it can be controlled.

No. of Printed Pages : 4 221754
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5th Sem./ Mechanical Engg.
Subject : Theory of Machines

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple Choice Questions. All Questions are compulsory. (6x1=6)

Q.1 In lower pairs, There is. (CO1)

a) A surface contact b) A point contact

c) A line contact d) None of the above

Q.2 Inversion of a double slider crank chain is. (CO1)

a) Oldhan's coupling b) Pendulum pump

c) Beam engine d) None of the above

Q.3 Practical application of cam are in (CO6)

a) Printing machines b) Sewing machines

c) Gear cutting machines d) All of the above

Q.4 Creep in belt drive is due to _____ (CO2)

a) Material of the pulley

b) Uneven extensions and contraction due to varying tension

c) Material of the belt

d) Larger size of the driver pulley

Q.5 The equation of rotation is (CO4)

a) T= Iw b) T = mk2

c) T = rw d) T = la

Q.6 With the increases of governor speed (CO6)

a) Radius of rotation and height of governor increase

b) Radius of rotation and heigh of governor decrease

c) Radius of rotation decreases, but height of governor increases

d) Radius of rotation increases, but height of governor decreases

SECTION-B

Note: Objective/Completion type questions. All questions are compulsory. (6x1=6)

Q.7 The vibrations caused in a body under the influence of external force, are knows as _____ vibrations.

Q.8 When one of the links of a kinematic chain is fixed, the chain is knows as _____.

Q.9 _____ is the ratio of the pitch circle diameter to the number of teeth.

Q.10 What is the coefficient of fluctuation of energy?

Q.11 What do you understand by isochronism of governor?

Q.12 To balance the reciprocating masses _____ and _____ must be balanced.

SECTION-C

Note: Short answer type Question. Attempt any eight questions out of Ten Questions. (8x4=32)

Q.13 Define cam and follower and give its classification.

Q.14 List four harmful effects of vibrations on machines.

Q.15 Explain different types of constrained motion.

Q.16 Write a short note on dynamic balancing.

Q.17 Define vibration. What are its different types? Explain.

Q.18 Write the advantages of V-belts over flat belts.

Q.19 Differentiate between machine and structure.

Q.20 Discuss the various causes of vibrations.

Q.21 Drive the relationship between fluctuation of speed and energy.

Q.22 Explain the method of balancing a single rotating mass by another rotating mass in the same plane.

SECTION-D

Note: Long answer questions. Attempt any two question out of three Questions. (2x8=16)

Q.23 An engine fly wheel has a mass of 5 tons and the radius of gyration in 1.5 m. If the maximum and minimum speed are 150 rmp and 140 rpm respectively. Find the maximum fluctuation of energy.

Q.24 Explain the construction and working of the porter governor with the help of a neat sketch.

Q25 Explain gear nomenclature with help of neat sketch.

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2nd Sem / Agri, Automobile, Mechanical, Mechanical (Tool & die Design)

Subject : Mechanical Engineering Drawing - I

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 Slotted nuts are (CO3)

a) Hexagonal b) Square

c) Octagonal d) Cylindrical

Q.2 Weakest element in flange coupling (CO7)

a) Flange b) key

c) Bolt d) Shaft

Q.3 For buttress thread the angle between the two flanks is_____ (CO2)

a) 55^{o} b) 47.5^{o}

c) 29^{o} d) 45^{o}

Q.4 Define the Wooden Joints. (CO1)

Q.5 Angle between flanks of ACME threads is_____ (CO2)

Q.6 What is use of locking nuts? (CO4)

SECTION-B

Note: Short answer type questions. Attempt any three questions out of four questions. (3x6=18)

Q.7 Draw proportionately the following. (CO4)

i) Castle nut ii) Split nut

Q.8 Draw free hand sketch of Rag foundation bolt. (CO3)

Q.9 Draw front view and top view of hexagonal nut, when internal diameter of nut is 20 mm. (CO3)

Q.10 Draw in detail BSW thread. (CO2)

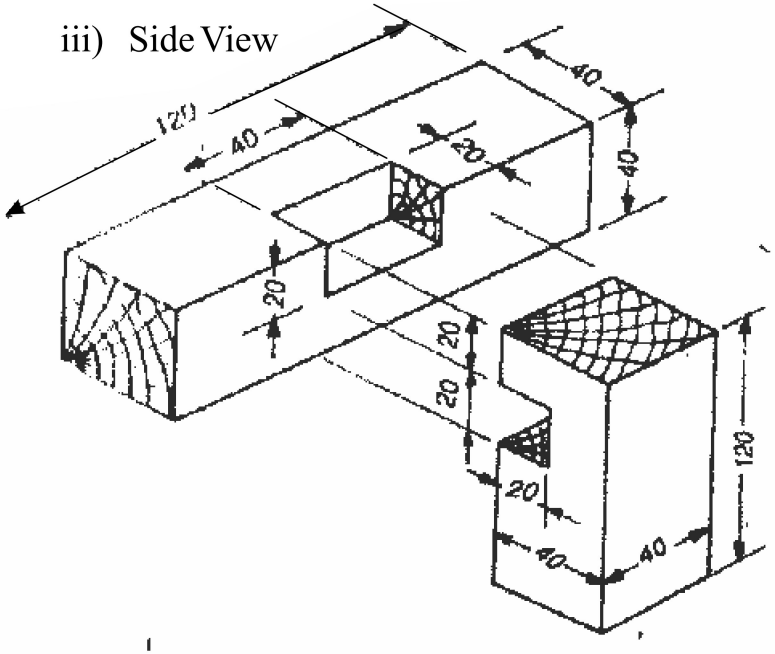
SECTION-C

Note: Long answer type questions. Attempt any three questions out of four questions. (3x12=36)

Q.11 The detailed of two members of "Cogged joints" is shown below. Assemble the parts together and draw the following views in first angle projection. (CO1)

i) Front View ii) Top View

iii) Side View



Q.12 Draw Sectional elevation & top view of double riveted double cover plate butt joint Zig-Zag type. Take plate thickness t = 18 mm. Draw at least 2-3 rivet heads in each row in plan. (CO6)

Q.13 Draw free hand sketch of muff coupling. (CO7)

Q.14 Details of a knuckle joint are given in fig.2. Draw the following views of it after assembling all its parts together to a suitable scale. (CO5)

a) Front elevation b) Top plan