No. of Printed Pages : 4
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180331/120331/031731/
32233/30332/105

3rd Sem. / Automobile Engineering

Subject : Strength of Material / Basic Mechanical Engg.

Time : 3 Hrs. M.M. : 100

SECTION-A

Note: Objective type questions. All questions are compulsory (10x1=10)

(Course Outcome/CO)

Q.1 Define Hook's law. (CO-1)

Q.2 Define bulk modulus. (CO-1)

Q.3 What is Strain energy? (CO-3)

Q.4 Write the S.I. unit of second moment of area. (CO-4)

Q.5 What is propped cantilever beam? (CO-5)

Q.6 Define Hogging. (CO-5)

Q.7 Define neutral axis. (CO-6)

Q.8 Define strength of shaft. (CO-7)

Q.9 Define buckling load. (CO-8)

Q.10 Define solid length of the spring (CO-9)

SECTION-B

Note: Very Short answer type questions. Attempt any ten parts 10x2=20

Q.11 Write the formula for extension of a uniform bar due to tensile load. (CO-1)

Q.12 Define modulus of resilience. (CO-3)

Q.13 What is radius of gyration? (CO-4)

Q.14 Write theorem of parallel axis. (CO-4)

Q.15 Define point of contraflexture. (CO-5)

Q.16 Define overhanging beam. (CO-5)

Q.17 What is section modulus? (CO-6)

Q.18 Write any four assumption made in theory of simple bending. (CO-7)

Q.19 Define slenderness ratio. (CO-8)

Q.20 Define torsional rigidity. (CO-8)

Q.21 Define helix angle. (CO-9)

Q.22 Define proof resilience (CO-3)

SECTION-C

Note: Short answer type questions. Attempt any five questions out of ten questions. 5x8=40

Q.23 Define any five mechanical properties of material. (CO-1)

Q.24 Derive an expression for volumetric strain for a cube. (CO-1)

Q.25 Write the formula for strain energy stored due to suddenly applied load. (CO-3)

Q.26 Draw the SFD and BMD for a cantilever beam carrying UDL over the whole span. (CO-5)

Q.27 Differentiate between hogging and sagging bending moment. (CO-5)

Q.28 A steel beam of symmetrical section is 200 mm deep. To what radius of curvature it should be bent so that the skin stress does not exceed 50 N/mm2. Take E=2x105 N/mm2. (CO-6)

Q.29 Differentiate between strut and column. (CO-8)

Q.30 A solid round bar 60mm in diameter and 2.5m long is used as a strut. One end of the strut is fixed, while its other end in hinged. Find the safe compressive load for this strut using Euler's formula. Assume E=200 GN/m^2 and factor of safety=3. (CO-8)

Q.31 Write about the classification of spring. (CO-9)

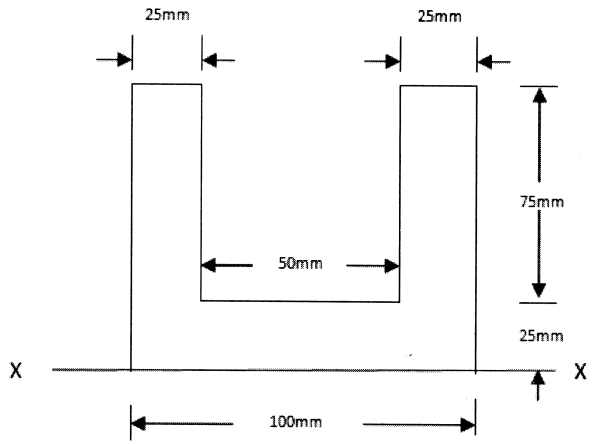
Q.32 Write the various end conditions of the column. Also write their equivalent length. (CO-9)

SECTION-D

Note: Long answer type questions. Attempt any three questions. 3x10=30

Q.33 Draw the stress strain curve for ductile material (mild steel). (CO-1)

Q.34 Find the second moment of area of the channel section about X-X axis as shown in figure. (CO-4)



Q.35 Draw the SFD and BMD for a simply supported beam carrying a UDL of 3KN/m over its left half if the span of the beam is 6m. (CO-5)

Q.36 Find the maximum torque that can be applied safely to a shaft of 200 mm diameter. The permissible angle of twist is 1.5° in a length of 6m and shear stress is not to exceed 45 N/mm^2. Take G=84.4 KN/mm^2 (CO-6)

(**Note:** Course outcome/CO is for office use only)

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181732/121732/031732
/ 94834/ 117232

3rd Sem. /Mechanical Engg.

Subject : Thermodynamics-I/ Thermodynamics/ pr. of thermal Engg.

Time : 3 Hrs. M.M. : 100

SECTION-A

Note: Objective type questions. All questions are compulsory (10x1=10)

(Course Outcome/CO)

Q.1 Define enthalpy. (CO-03)

Q.2 Define specific heat. (CO-03)

Q.3 Write another name of constant temperature process. (CO-02)

Q.4 Define heat. (CO-01)

Q.5 Give full form of C. O. P. (CO-03)

Q.6 Write the ideal gas equation. (CO-03)

Q.7 Define entropy of steam. (CO-04)

Q.8 Give the use of feed pump in a boiler. (CO-05)

Q.9 Define air standard efficiency. (CO-06)

Q.10 Write the function of intercooler in a compressor. (CO-06)

SECTION-B

Note: Very Short answer type questions. Attempt any ten parts 10x2=20

Q.11 Define quasi-static process. (CO-01)

Q.12 State Boyle's Law. (CO-02)

Q.13 Describe universal gas constant and give its unit. (CO-02)

Q.14 Define adiabatic process. (CO-03)

Q.15 Define refrigerator. (CO-03)

Q.16 Define heat source and heat sink. (CO-04

Q.17 Describe P-V-T surface. (CO-03)

Q.18 Describe dry saturated steam. (CO-04)

Q.19 Define latent heat of steam. (CO-04)

Q.20 Write the functions of blow cock in a boiler. (CO-05)

Q.21 Define reversible process. (CO-03)

Q.22 Define volumetric efficiency of an air compressor. (CO-06)

SECTION-C

Note: Short answer type questions. Attempt any five questions out of ten questions. 5x8=40

Q.23 Explain the thermodynamics equilibrium. (CO-02)

Q.24 Explain isolated type thermodynamic system in brief. (CO-03)

Q.25 Define specific heat at constant pressure and specific heat at constant volume. Give the relationship between them also. (CO-03)

Q.26 Show the main parts of Lancashire boiler with the help of neat sketch. (CO-05)

Q.27 Explain the significance of entropy in thermodynamic system. (CO-01)

Q.28 Explain PPM of first kind. (CO-05)

Q.29 Write a short note one Vander Wall's equation. (CO-02)

Q.30 Define triple point. Explain its importance. (CO-05)

Q.31 Explain the working of throttling calorimeter. (CO-04)

Q.32 Differentiate fire tube boiler and water tube boilers. (CO-05)

SECTION-D

Note: Long answer type questions. Attempt any three questions. 3x10=30

Q.33 Derive an expression for work done, change in internal energy and rate of heat transfer for an adiabatic process. (CO-02)

Q.34 Explain second law of thermodynamic with the help of Kelvin Planck's and Classius statements. (CO-01)

Q.35 An engine working on the otto cycle, has a cylinder diameter of 150mm and a stroke of 225mm. The clearance volume is 1.25×10^{-3} m^3. Find the air standard efficiency of this engine. Take g=1.4. (CO-04)

Q.36 Explain the construction & working of single stage reciprocating air compressor with the help of a neat diagram. (CO-06)

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180333/171733/
121733/31733

3rd Sem. / Mechanical, Auto., Prod., T&D, GE, CNC, CAD / CAM, Found & Forg., Metallurgy, Print Making Tech.

Subject : Workshop Technology - I

Time : 3 Hrs. M.M. : 100

SECTION-A

Note: Objective type questions. All questions are compulsory (10x1=10)

(Course Outcome/CO)

Q.1 Forge welding is a type of _____ welding. (CO-1)

Q.2 Acetylene gas is stored in cylinder in _____ form. (CO-2)

Q.3 Define porosity. (CO-3)

Q.4 Resistance welding is a _____ (CO-4)

Q.5 Full form of T.I.G. (CO-5)

Q.6 Cope and drag pattern is a form of _____. (CO-6)

Q.7 Define mould. (CO-7)

Q.8 Define fettling. (CO-9)

Q.9 Name different types of risers. (CO-10)

Q.10 Name two defects in casting. (CO-17)

SECTION-B

Note: Very short answer type questions. Attempt any ten questions out of twelve questions. 10x2=20

Q.11 Define weld bead. (CO-1)

Q.12 Define neutral flames. (CO-2)

Q.13 Name two types of arc welding machines. (CO-3)

Q.14 What is fusion zone? (CO-3)

Q.15 Write the applications of spot welding (any two.) (CO-4)

Q.16 Define MIG welding. (CO-5)

Q.17 Define core. (CO-6)

Q.18 Write the function of slick. (CO-7)

Q.19 Define riser. (CO-10)

Q.20 Define press working. (CO-13)

Q.21 Define blanking. (CO-13)

Q.22 Define roll forging. (CO-14)

SECTION-C

Note: Short answer type questions. Attempt any five questions out of ten questions. 5x8=40

Q.23 What is the function of coating on electrodes? (CO-3)

Q.24 Write the advantages of gas welding. (CO-2)

Q.25 Write the advantages and applications MIG welding (any four). (CO-4)

Q.26 Write the function of pattern (any five). (CO-6)

Q.27 Explain floomoulding with neat sketch. (CO-8)

Q.28 Explain, in brief centrifugal casting and its types. (CO-9)

Q.29 Write the requirements of a rise. (CO-10)

Q.30 Write the causes and remedies of porosity in casting. (CO-12)

Q.31 Write the advantages of forging. (CO-14)

Q.32 Write the general properties of plastics. (CO-17)

SECTION-D

Note: Long answer type questions. Attempt any three questions out of four questions. 3x10=30

Q.33 Write a short note on (CO-5)

(i) Robotic welding. (ii) Seam welding.

Q.34 Explain with neat sketch, construction and working of electric induction furnace. (CO-11)

Q.35 Explain the process wire drawing. (CO-16)

Q.36 Explain any two rolling mills with neat sketch. (CO-15)

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181734/171734/121734
/31734/30133

3rd Sem. / Mechanical Engg.

Subject : Mechanical Engg. Drawing

Time : 3 Hrs. M.M. : 100

SECTION-A

Note: Very short answer type questions. Attempt any ten questions out of twelve questions. (10x2=20)

(Course Outcome/CO)

Q.1 Define tolerances. (CO-1)

Q.2 Define transition fit. (CO-1)

Q.3 Define clearance. (CO-1)

Q.4 Define coupling. (CO-2)

Q.5 Write types of bearings. (CO-2)

Q.6 Define pulley. (CO-2)

Q.7 What is the function of Cast Iron pipes? (CO-2)

Q.8 What is the function of tool holder in lathe machine. (CO-2)

Q.9 What is the function of drilling jig. (CO-4)

Q.10 Write the function of connecting rod in I.C. engine. (CO-5)

Q.11 Define screw jack? (CO-4)

Q.12 Define Circular pitch of a Gear? (CO-6)

SECTION-B

Note: Long answer type questions. Attempt any four questions out of five questions. 20x4=80

Q.13 Draw any two orthographic views of Cast iron bracket with free hand. (CO-3)

Q.14 Draw two free hand sketches of Fast and loose pulley. (CO-2)

Q.15 Draw the profile of involutes teeth for a gear having 24 teeth and module 10mm.pressure angle 20^0. Use Tracing paper method. (CO-6)

Q.16 Fig(a) shows detail drawing of a foot step bearing. Study the details of drawing carefully and assemble all the parts of the foot step bearing. Draw the following views after assembly. (CO-4)

(a) Front Elevation full in section

(b) Sectional top view.

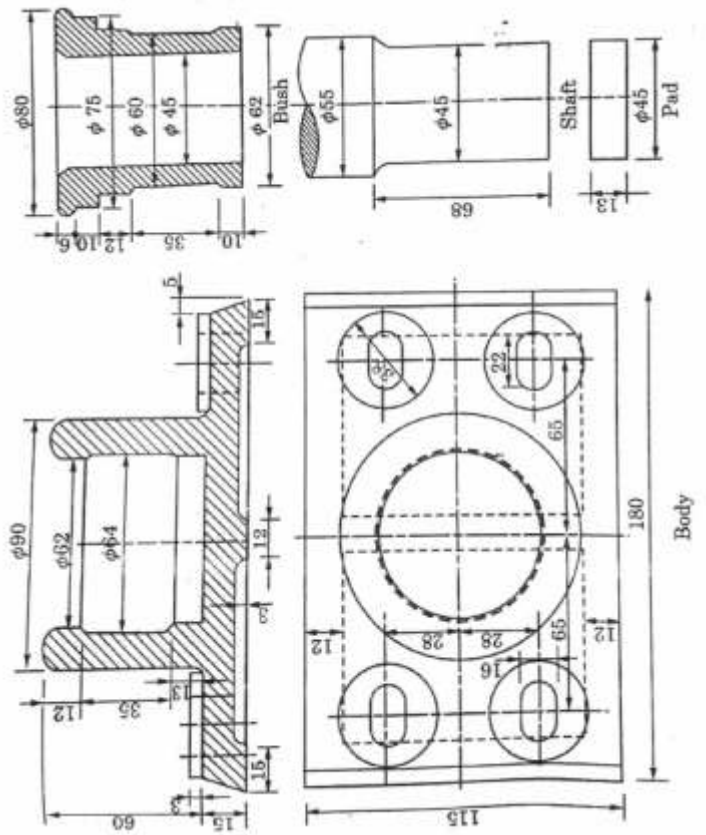

Fig. (a) Detail drawing of a foot step bearing

Q.17 Fig(b) shows the detail drawing of an expansion pipe joint. Assemble all the parts together and draw the front elevation half in section. Inserts all the necessary dimensions. Select a suitable scale. (CO-4)

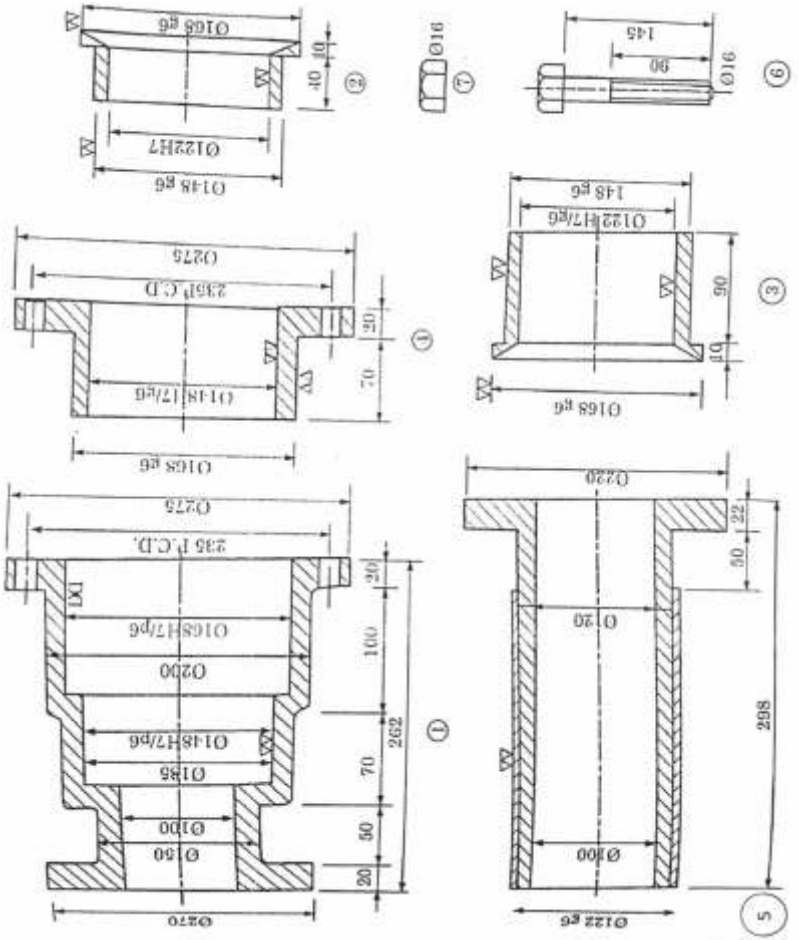

Fig. (b) Detail drawing of an expansion pipe joint

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180136/170336/
120136/30136/30423

3rd Sem. / Agri

Subject : Basic of Electrical & Electronics Engg.

Time : 3 Hrs. M.M. : 100

SECTION-A

Note: Objective type questions. All questions are compulsory (10x1=10)

Q.1 Cell is a source of A.C/D.C. (CO-1)

Q.2 Unit of voltages is _____. (CO-2)

Q.3 KWH is the unit of _____. (CO-2)

Q.4 Transformer used to step up or step down _____. (CO-4)

Q.5 Star Delta starter is used in _____ motor. (CO-6)

Q.6 What is full form of MCB? (CO-7)

Q.7 Instrument used for measuring voltage is _____. (CO-2)

Q.8 To obtain P-type semiconductor _____ Impurity is added to pure semiconductor. (CO-8)

Q.9 Draw the symbol of NPN transistor. (CO-8)

Q.10 _____ volts supply is given to the domestic consumer in India. (CO-5)

SECTION-B

Note: Very short answer type questions. Attempt any ten questions out of twelve questions. 10x2=20

Q.11 Define voltage? (CO-2)

Q.12 Define Power? (CO-2)

Q.13 Define Diode? (CO-8)

Q.14 Name any two starter used for starting of 3-phase induction motor. (CO-6)

Q.15 What is earthing? (CO-7)

Q.16 State Faraday's Laws of electromagnetic induction? (CO-3)

Q.17 What is the function of starter? (CO-6)

Q.18 What is the function of regulator for an electric fan? (CO-5)

Q.19 Which type of wiring is prefferred for workshop and factories? (CO-5)

Q.20 What is the difference between A.C and D.C supply. (CO-1)

Q.21 What should be immediate action to save a person from shock? (CO-7)

Q.22 Draw V-I characteristics of Diode? (CO-8)

SECTION-C

Note: Short answer type questions. Attempt any five questions out of ten questions. 5x8=40

Q.23 Explain the working principle of induction motor? (CO-6)

Q.24 What is the working principle of transformer? (CO-3)

Q.25 Explain forward biasing of the PN junction diode. (CO-8)

Q.26 What are the advantage of HRC fuses? (CO-7)

Q.27 What are the applications of single phase motor? (CO-6)

Q.28 Draw single line diagram showing generation transmission and distribution of electric power? (CO-4)

Q.29 Explain various type of servo motor? (CO-6)

Q.30 Why is pump? Explain centrifugal pump. (CO-6)

Q.31 List and explain in brief main components of over head transmission lines. (CO-4)

Q.32 List various advantages of electrical energy over other form of energy. (CO-1)

SECTION-D

Note: Long answer type questions. Attempt any three questions out of four questions. 3x10=30

Q.33 Explain casing capping wiring. What are its advantage and disadvantage? Where it is used? (CO-5)

Q.34 What is a transformer? Discuss in brief its principles and construction. (CO-3)

Q.35 Describe different types of energy band in solids. (CO-8)

Q.36 Answer any two of following:

a) Zener diode and their applications. (CO-8)

b) Difference between fuse and MCB. (CO-7)

c) Key diagram of 3 phase transmission and distribution system. (CO-4)