Enrollment No.....

Diploma in Engineering (Polytechnic)
Fifth Semester Examination, December 2021
Mechanical Measurement and Control [ME503]
Branch-ME

Time: 3:00 Hrs **Max Marks 70**

Note : Student should not write anything on question paper.
Question no. 1 is compulsory. Attempt any five questions from Q.2 to Q.8

Q.1 (a) Explain generalized measurement system elements with block diagram .

(b) What is mathematical modeling ? Write significance of mathematical marketing in control system ?

Q.2 (a) Write short note on PID controller ?

(b) Write the working principle of piezoelectric will rometer ?

Q. 3 (a) For a particular unity feed bank system.

$G(s) = 242(S+5) / S(S+1)\ CS^2+5S+121$

(b) With a neat sketch explain working of an operational amplifier (op-amp) remunerate limitation of the some .

Q.4 (a) Explain the following terms with respect to the measurement system.
i) Threshold and resolution
ii) Sensitivity and drift
iii) hysteresis

(b) With a neat sketch explain the working of LVDT .

Q.5 (a) Derive an expression for starchy state error when step and rump input is given to the system

(b) Define the following terms with reference to the state space modelling of the system ?
i) State space.
ii) State variable.

Q.6 (a) illustrate the working principle of "nozzole feupper" for displacement measurement. ?

(b) Explain the construction and working of ADC technogenerator explain its advantage and disadvantages ?

Q.7 (a) With a neat sketch explain working of an operational amplifier (op-amp.) Enumerate limitation of the same.

(b) What are desired interfering and modifying input WRT measurement of a system ?

Q .8 (a) Draw the root lows of the feed back system whose open loop transfer function is given by.

$$G(s)\,H(s) = K / S^2 (S+1)$$

(b) Explain generalized measurement system elements with block diagram describe its function with suitable example. .

Enrollment No.....

Bachelor of Engineering
Fifth Semester Main Examination, December-2021
Machine Component Design [ME-504]
Branch: ME

Time: 3:00 Hrs **Max Marks 70**

Note: 1. Attempt any five questions out of eight.
2. All question carry equal marks.

Q.1 Explain
(a) S-N curve.
(b) Surge in springs

Q.2 Give the standard design procedure of are internal expending shop Break, Mention the assumptions clearly along with the design Equations.

Q.3 Discuss the step to design a simple Screw Jack and its components.

Q.4 Define the following terms
i) Size factor
ii) Surface factor
iii) Cumulative fatigue damage factor

Q.5 (a) What is Stress Concentration? Define index of Sensitivity.
(b) Differentiate between a clutch and coupling.

Q.6 With the help of neat sketch bring out clearly the difference between good Man diagram also explains to which types of materials Gerbera's parabolic relation and older berg's Equation is applicable.

Q.7 Write short note
(i) Band and block brake
(ii) Centrifugal Clutches
(iii) Design for finite life

Q.8 (a) Define spring buckling also give the classification by spring
(b) Design the journal bearing for centrifugal pump from the following Data Load the Journal -10kn
Speed on the journal -900 kn
Ambient Temperature – 150^0c

Enrollment No.....

Bachelor of Engineering
Fifth Semester Main Examination, December 2021
Dynamics of Machine [ME-505]
Branch: ME

Time: 3:00 Hrs **Max Marks 70**

Note : 1. Attempt any five questions out of eight.
2. All question carry equal marks.

Q.1 (a) What is a dynamometer ? Explain any one dynamometer.
(b) Explain working of band brake

Q.2 (a) Define the friction and friction circle. State types of friction .
(b) Discuss turning moment of crank shaft

Q.3 (a) Differentiate between the function of a flywheel and governor in a steam engine .
(b) What is meant by static and dynamic unbalance in machinery ?

Q.4 (a) Determine the unbalanced forces and couples in two cylinder engine.
(b) Discuss the effect of slip of belt on the pulleys on the velocity ratio of belt drive.

Q.5 (a) Explain the working of multiplate clutch with a neat diagram.
(b) Discuss selection of v-belts, ropes and chains for different application.

Q.6 (a) What is hunting of governor ?
(b) Explain the effect of gyroscopic couple an aeroplane.

Q.7 (a) Determine the unbalanced forces and couples in a two cylinder engine.
(b) Prove that if the external moment is applied to a link, the constraint force from a couple.

Q.8 Write a short notes on any three -
(a) Balancing of three rotating mass on different plane.
(b) Response of undamped con mechanism.
(c) friction circle and its uses.
(d) characteristics of centrifugal governor.

Enrollment No.....

Bachelor of Engineering
Fifth Semester Main Examination, December 2021
Entrepreneurship & Management Concepts [ME-501]
Branch: ME

Time: 3:00 Hrs **Max Marks 70**

Note : Attempt any five questions out of eight.
All question carry equal marks.

Q.1 (a) Define system concept and its types .

(b) What is open flexible adoptive system.

Q.2 (a) Explain Steven altar's nine element.

(b) What is importance of management ?

Q.3 (a) Explain BCG matrix with examples.

(b) What is importance of SWOT analysis ?

Q.4 (a) Write a short note on Maslow's need hierarchy theory.

(b) Define marketing and explain its importance.

Q.5 (a) Define marketing and explain its importance.

(b) Explain CRM and its importance in detail.

Q.6 (a) What is productivity ? Explain type of productivity.

(b) Distinguish between product & service.

Q.7 (a) What do you understand by product layout ? Explain with examples?

(b) Write a short note TQM.

Q.8 (a) What is entrepreneurship ? Explain characteristics of good entrepreneur .

(b) What is UPV ? Why it is important ?

Enrollment No.....

Bachelor of Engineering

Fifth Semester Main Examination, December 2021

Turbo Machinery [ME-502]

Branch-ME

Time: 3:00 Hrs **Max Marks 70**

Note : (i) Attempt any five questions out of eight.
(ii) All questions carry equal marks.

Q.1 (a) Write down application of first & second law of thermodynamics to Turbo machines.

(b) Write down application of turbo machinery.

Q.2 (a) Explain the working of Turbo converter.

(b) Define the Euler-turbine equation.

Q.3 (a) Define the degree of reaction & drive a general expression of degree of reaction.

(b) Compare the axial flow & centrifugal compressor.

Q.4 (a) Briefly explain the working of a peloton wheel.

(b) Explain the various losses which occur in compressor.

Q.5 (a) Drive the alternate form of Euler equation.

(b) Write down brief introduction of turbo machinery.

Q.6 Explain degree of reaction. Explain the working of single stage turbine. Also explain pressure & velocity along the axis of the turbine.

Q.7 Derive an expression for specific speed of a reaction turbine & impulse turbines.

Q.8 Plot & discuss the characteristics of centrifugal & axial compressor.