Code No. 11371

FACULTY OF ENGINEERING

B.E. I - Semester (CBCS) (Backlog) Examination, November / December 2018

Subject : Engineering Mechanics – I

Time : 3 Hours **Max. Marks: 70**

Note: Answer all questions from Part-A & any five questions from Part-B.

PART – A (20 Marks)

1 Enumerate different system of forces.

2 The resultant of two concurrent forces of magnitudes ‘F’ and ‘F’ is also a force of same value ‘F’. Find the angle between the two forces.

3 What is a wrench resultant? Give an example.

4 State the conditions of equilibrium.

5 Show that angle of repose is equal to angle of friction.

6 Differentiate between static friction and limiting friction.

7 Mention the methods for the analysis of trusses.

8 Find the centroid of a semicircular arc of radius ‘R’.

9 Find the moment of inertia and radius of gyration of a circular section of radius 300mm.

10 State perpendicular axis theorem for moment of inertia.

PART – B (5x10=50 Marks)

11 A flat plate is subjected to a coplanar force system as shown in the figure (1). Find the resultant and its ‘x’ and ‘y’ intercepts. Each grid shown in the figure is a square of one unit. (10)

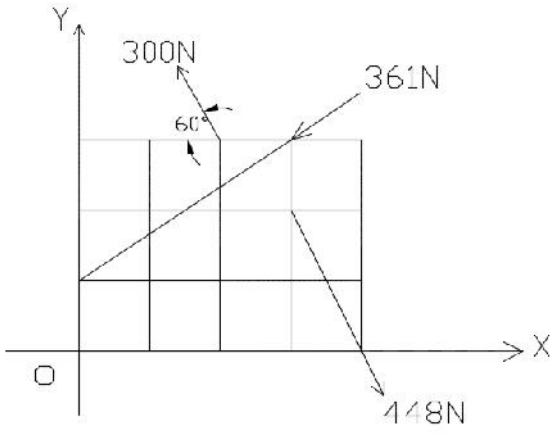

Figure (1)

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12 Two identical spheres, each weighing 200N are supported as shown in figure (2). Determine the reactions at A, B, C and D. (10)

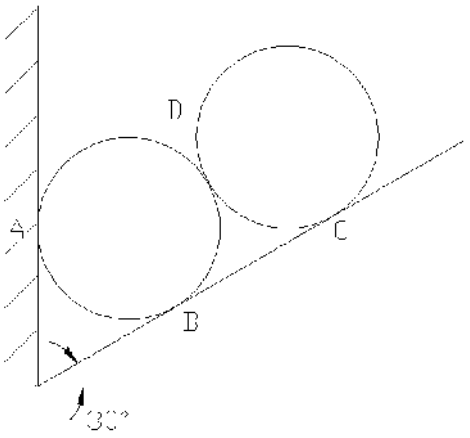

Figure (2)

13 Three concurrent forces P, T and F have a resultant of 100N directed forward and up to the right at $\theta_x = 60^0$, $\theta_y = 60^0$, $\theta_z = 45^0$. 'P' equals 210N and passes from origin through point (3, 2, 6). The value of 'T' is 180N and is directed from the origin toward point (-6, 6, -3). Determine the magnitude of the third force 'F' and the angle it makes with the reference axes. (10)

14 A uniform plank of weight 300N and length 2m is placed as shown in figure (3) with its contact with the inclined planes. The angle of friction is 15^0. Determine the maximum value of the angle 'α' at which slipping impends. (10)

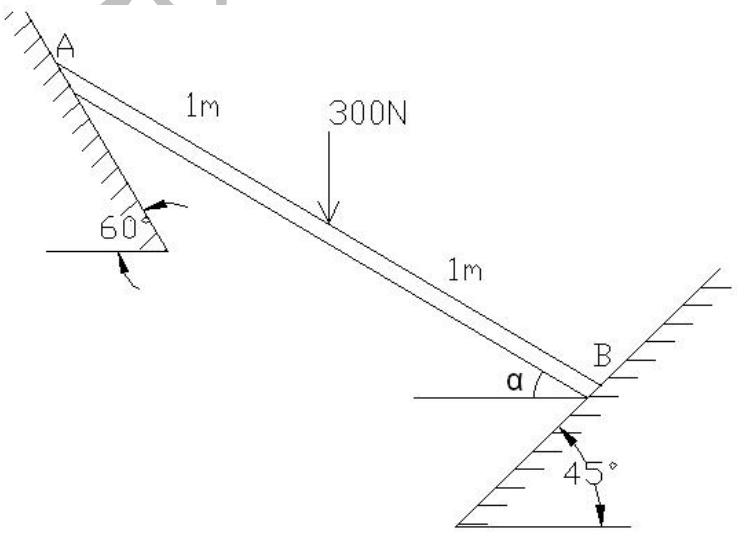

Figure (3)

15 Determine the centroid of the area shown in figure (4) w.r.t the axes shown. (10)

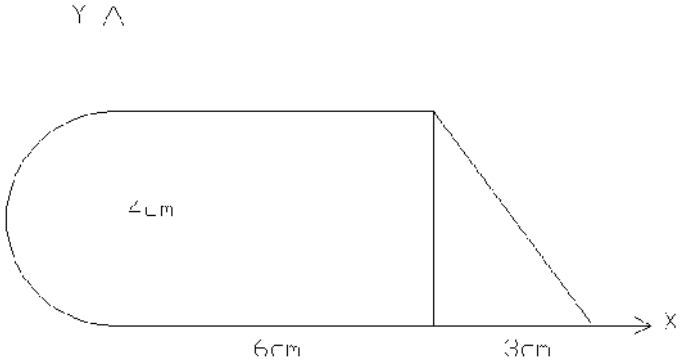

Figure (4)

16 For the composite section shown in figure (5), determine the moment of inertia about indicated XX axis. (10)

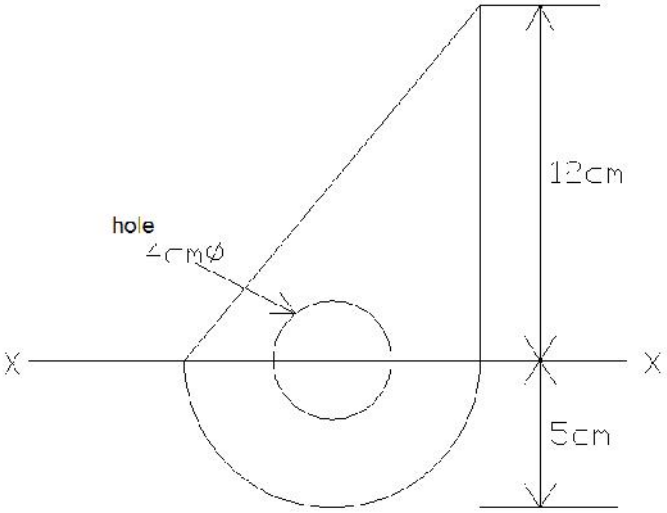

Figure (5)

17 For the cantilever truss, shown in figure (6), find the forces in all the members using method of joints. (10)

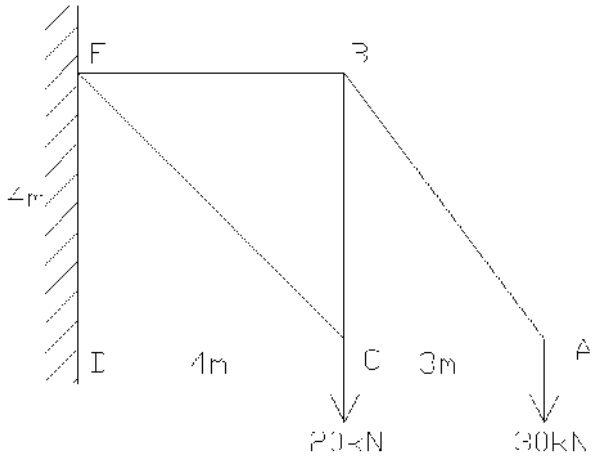

Figure (6)

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Code No. 11125

FACULTY OF ENGINEERING

B.E. 3/4 (Civil) II – Semester (Suppl.) Examination, Nov. / Dec. 2018

Subject: Soil Mechanics

Time: 3 Hours **Max.Marks: 75**

Note: Answer all questions from Part A and any five questions from Part B.

PART – A (10x2.5 = 25 Marks)

1 Briefly describe the process of soil formation.

2 What are the major soil groups of India? Explain their characteristics.

3 Show the relation between porosity 'n' and void ratio 'e'.

4 Discuss the importance of Atterberg's limits in soil engineering.

5 What is Darcy's Law? What are its limitations?

6 Write a brief note on the uses of flow net.

7 Difference between compaction and consolidation.

8 Explain the Mohr's Coulomb strength envelope.

9 Define infinite slope and finite slope its applications.

10 What are the relation between lateral earth pressure and movement of retaining structure?

PART – B (5x10 = 50 Marks)

11 a) Distinguish between black cotton soil and laterite form in engineering point of view. And derive the relation between dry density and bulk density in terms of water content. 5

b) A wet sample weighing 23 N had a volume of 1150 cm^3. After oven drying, its weight is reduced to 19.60 N. The specific gravity of solids was found to be 2.60. Determine water content, bulk density, dry density, saturated density, effective unit weight, void ratio, porosity and degree of saturation. 5

12 a) Define the soil texture and soil structure. What are the various terms used to describe the above properties of soil? 5

b) In a sieve analysis conducted on a sandy soil, the following results were obtained:

Sieve size, mm	4.74	2.36	1.18	0.60	0.30	0.15	0.075	Pan
Mass of soil retained, g	40.20	219.80	100.50	49.50	40.60	19.40	10.30	19.70

Draw the grain size distribution curve. Find the percentage of gravel, sand and fine grained fraction. Also find whether the soil is well graded or poorly graded. 5

13 a) Stating the basic principles of flow nets describe the trial sketching method of obtaining a flow net with particular reference to a homogeneous earth dam. 5

b) A sand sample is tested in a constant head permeameter 11.70 cm high and 10.20 cm in diameter. The quantity of water passing through the sample under an effective head of 10 cm for a period of 90 seconds was measured to be 600 ml. Determine the coefficient of permeability. 5

14 a) Listing the various factors that influence the compaction soils, show their influence with illustrative sketches of compaction curves. 5

b) The laboratory results of a light compaction test performed on a soil are given as follows:
Volume of mould **:** 1,000 cc
Empty mass of mould **:** 2,475 g

Trial No	Mass of mound + Compacted wet soil, g	Moisture Content, %
1	4,219	10.10
2	4,330	12.30
3	4,407	13.90
4	4,387	15.80
5	4,339	18.30
6	4,268	20.40

Draw the compaction curve and determine maximum dry density (MDD) and optimum moisture content (OMC). Also, draw the zero air voids line. 5

15 a) Define and distinguish between coefficient of volume compressibility and coefficient of consolidation. Describe clearly one method of computing coefficient of consolidation, given oedometer test data. 5

b) The following observation are recorded in a consolidated test on a fully saturated specimen. 5
Initial height of specimen = 20 mm
Diameter of specimen = 75 mm
Sp. Gravity of soil grains = 2.77
Water content (final) = 39%

Applied pressure in kN/m^2	0	50	100	200	400	800	0
Final dial gauge reading mm x 10^{-2}	100	359	499	632	768	899	766

a) Calculate the void ratio corresponding to each pressure increment.
b) Plot e – log p curve and find the compression index.
c) Compute the values of coefficient of compressibility and coefficient of volume change, for the increment of pressure from 100 to 200 kN/m^2.

16 a) Explain the procedure of a laboratory vane shear test and which was conducted on soft, saturated clay sample. The diameter and height of the vane are 10 mm and 15 mm respectively. Find the shear strength of the sample, if it failed under a torque of 80 N-mm. 5

b) The results of Triaxial consolidated undrained test conducted on a soil are given below. Find the total stress and effective stress parameters. 5

Cell pressure, kPa	75	150	300
Deviator stress at failure, kPa	199	272	418
Pore water pressure at failure, kPa	25	50	100

17 a) Write the expressions for the factor of safety using the method of slices when the slope of a homogeneous earth dam is dry and when fully submerged. Assume the soil to possess both cohesion and friction. 5

b) A new canal is excavated to a depth of 5 m with banks having 1:1 slope. The properties of soil are: cohesion = 14 kPa, angle of internal friction = 20^o, void ratio = 0.65 and specific gravity of solids = 2.70. Calculate the factor of safety with respect to cohesion when the canal is running full. What will be the factor of safety if the slope is changed to be 30^o to vertical? The Taylor's stability number is given in the table for different slope angle for $\Phi = 20^o$. 5

Slope angle	30^o	45^o	60^o	75^o	90^o
Stability number	0.025	0.062	0.097	0.134	0.182

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Code No: 11131

FACULTY OF ENGINEERING

BE 3/4 (EEE) II-Semester (Suppl.) Examination, November / December 2018

Subject: Digital Signal Processing

Time: 3 Hours **Max. Marks : 75**

Note: Answer All Questions From Part-A & Any Five Questions From Part-B

PART-A (25 Marks)

1 Define causal and non-causal systems. 2

2 For each of the following systems described by difference equations, determine whether the system Time Invariant or not? 3
   i) y(n)=n.x(n)
   ii) y(n)=x(n)+x(n-1)
   iii) y(n)=x(-n)

3 Distinguish between linear convolution and circular convolution. 3

4 For a given N-point sequence, mention the number of computations (multiplications and additions) required to compute DFT & FFT 2

5 Find the Z-Transform of the sequence $x(n)=na^n u(n)$ 3

6 Find the system function and the impulse response of the system described by difference equation y(n)=x(n)+2x(n-1)-4x(n-2)+x(n-3) 3

7 What is meant by frequency warping? 2

8 For given $H(s)=\frac{2}{(s+1)(s+2)}$, Obtain H(Z) using impulse invariant technique 3

9 Compare FIR and IIR filters 2

10 Mention the need for employing window technique in FIR filter Design. 2

PART- B (50 Marks)

11 i) Define stability and causality? 2
ii) Derive the expression for condition of stability? 5
iii) Write short notes on classification of systems? 3

12 i) Compute DFT of the sequence x(n)= {1,0,1,0,1,0,1,0 } 7
   ii) Perform the circular convolution on the following sequences using matrix method $x_1(n)$= {1,0,1,1} $x_2(n)$= {1,2,1,2} 3

13 Explain in detail the Decimation-in- Time (DIT) FFT Algorithm and also draw the butterfly diagram for 8-point sequence using Decimation-in- Time (DIT) FFT Algorithm. 10

14. a) Obtain the Direct Form-II realization for the following system 5

$$H(Z)\frac{\left[1+\frac{1}{4}z^{-1}\right]}{\left[1+\frac{1}{2}z^{-1}\right]\left[1+\frac{1}{2}z^{-1}+\frac{1}{4}z^{-2}\right]}$$

b) Realise the following system function using minimum number of multipliers

$$H(z)1+\frac{1}{3}z^{-1}+\frac{1}{4}z^{-2}+\frac{1}{4}z^{-3}+\frac{1}{3}z^{-4}+z^{-5}$$ 5

…2

15 Design a digital Butterworth filter satisfying the constraints 10

$0.707 \leq |H(e^{j\omega})| \leq 1$ for $0 \leq \omega \leq \pi/2$

$|H(e^{j\omega})| \leq 0.2$ for $3\pi/4 \leq \omega \leq \pi$

With T=1 sec using Bilinear Transformation

16 Design an ideal high pass FIR filter with frequency response 10

$H_d(e^{j\omega}) = 1$ for $-\pi/4 \leq \omega \leq \pi$

$= 0$ for $|\omega| \leq \pi/4$

Find the values of h(n) for N=11 and also H(z) using Hamming Window

17 i) Draw the architecture of TMS 320C54X DSP Processor 7

ii) Mention the applications of DSP 3

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Code No : 11135

FACULTY OF ENGINEERING

BE 3/4 (Inst) II-Semester (Suppl.) Examination, November / December 2018

Subject : Digital Signal Processing

Time: 3 Hours **Max. Marks : 75**

Note: Answer All Questions From Part-A & Any Five Questions From Part-B

PART-A (25 Marks)

1. Analyze whether the following system is stable or unstable system (2)
$y(n)+y(n-1)=x(n)+x(n-2)$

2) Determine the Z-transform and ROC of the following anti-causal signal (3)
$x(n)=\{4,\ 2,\ 3,-1,\ 2\}$

3) Compute the Linear convolution of the following signals. (2)
$x(n)=\{1,-1,-2,3,-1\}, h(n)=\{1,2,3\}$

4) Explain the two properties of twiddle factor $W_N = e^{-j2®/N}$ in FFT (3)

5) How analog poles are mapped to digital poles in impulse invariant transformation? (2)

6) Compare Butterworth and Chebyshev IIR filters. (3)

7) Write the sufficient conditions for FIR filter to have linear phase characteristics? (2)

8) Write the steps involved in FIR filter design using Windowing technique. (3)

9) Explain the difference between fixed point and floating point DSP processors. (2)

10) Explain applications of DSP and other microprocessors. (3)

Part-B (50 Marks)

11) a) Analyze whether stability and causality of the following systems (4)
$i) y(n)=e^{-x(n)} \quad ii) h(n)=2^n.u(n)$

b) Determine the inverse z-transform (6)

$$X(z)=\frac{z^{-1}}{3-4z^{-1}+z^{-2}}; ROC|z|>1$$

12) Find 8-Point DFT using DIF FFT algorithm for the following sequence (10)
$x(n)=\{2,2,2,2,1,1,1,1\}$

13) Design a low pass Butterworth filter using the Bilinear Transformation to satisfy the following constraints
Passband Frequency : 0-400 Hz ; Stopband Frquency : 2.1 - 4KHz
Passband Ripple : 2 dB ; Stopband attenuation : 20dB
Sampling Frquency : 10KHz

14) Design a digital High pass FIR filter using Hamming window function by taking N=9 samples of the window function and with a cut-off frequency of 1.2 rad/sec. (10)

…2

15) Explain the architecture of TMS320C54X fixed point DSP processor with neat block diagram. (10)

16) a) Compute the 4-point DFT of the following sequence $x(n) = \{2,1,4,3\}$ (5)

b) Obtain H(z) using impulse invariant Transformation when T=1 sec for (5)

$$H_a(s) = \frac{s + 0.5}{(s + 0.5)^2 + 4)}$$

17) a) Explain Sampling Theorem in detail. (5)

b) Obtain the Direct Form-I realization of the following LTI system (5)

$$y(n) = -\frac{13}{12}y(n-1) - \frac{9}{24}y(n-2) - \frac{1}{24}y(n-3) + x(n) + 4x(n-1) + 3x(n-2)$$

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Code No. 11613 / O

FACULTY OF ENGINEERING

B.E. 3/4 (Inst.) II-Semester (Old) Examination, November / December 2018

Subject : Digital Signal Processing & Applications

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A & any five questions from Part-B.

PART – A (25 Marks)

1	Define static and dynamic systems.	2
2	For each of the following systems described by difference equations, determine whether the system Time Invariant or not? (i) y(n)=n.x(n) (ii) y(n)=x(n)+x(n-10) (iii) y(n)=x(-n)	3
3	Mention the properties of DFT.	3
4	Compare DFT and FFT	2
5	Write short notes on bilinear transformation?	3
6	Compare Butterworth and Chebyshev Type-I filters.	3
7	What is the reason that FIR filter is always stable?	2
8	Compare FIR and IIR filters.	3
9	What is pipelining? What are the different phases in pipelining?	2
10	What are the factors that influence the selection of DSPs?	2

PART- B (50 Marks)

11	i) Define stability and causality?	2
	ii) Derive the expression for condition for stability?	5
	iii) Write short notes on classification of systems?	3
12	Compute DFT of the sequence x(n)= {1,1,1,1,1,1,1,1 }	10
13	Explain in detail the Decimation-in- Time (DIT) FFT Algorithm and also draw the butterfly diagram for 8-point sequence using Decimation-in-Time (DIT) FFT Algorithm.	10

14 (a) Obtain the canonical form realisation for the following system. 5

$$H(z) = \frac{(1+\frac{1}{4}z^{-1})}{(1+\frac{1}{2}z^{-1})(1+\frac{1}{2}z^{-1}+\frac{1}{4}z^{-2})}$$

(b) Realise the following system function using minimum number of multipliers 5

$$H(Z)=1+\frac{1}{3}z^{-1}+\frac{1}{4}z^{-2}+\frac{1}{4}z^{-3}+\frac{1}{3}z^{-4}+z^{-5}$$

15 Design a digital Butterworth filter satisfying the constraints 10

$0.707 \leq |H(e^{j\omega})| \leq 1$ for $0 \leq \omega \leq \pi/2$

$|H(e^{j\omega})| \leq 0.2$ for $3\pi/4 \leq \omega \leq \pi$

With T=1 sec using Bilinear Transformation

16 Design an ideal high pass FIR filter with frequency response 10

$H_d(e^{j\omega}) = 1$ for $-\pi/4 \leq \omega \leq \pi$

$= 0$ for $|\omega| \leq \pi/4$

Find the values of h(n) for N=11 and also H(z) using Hamming Window.

17 Explain in detail about the Harvard architecture and also pipelining? 10

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Code No: 11140

FACULTY OF ENGINEERING

B.E. 3/4 (ECE) II-Semester (Suppl.) Examination, November / December 2018

Subject: Digital Communication

Time: 3 Hours **Max. Marks: 75**

Note: Answer All Questions From Part – A, any FIVE Questions From Part - B

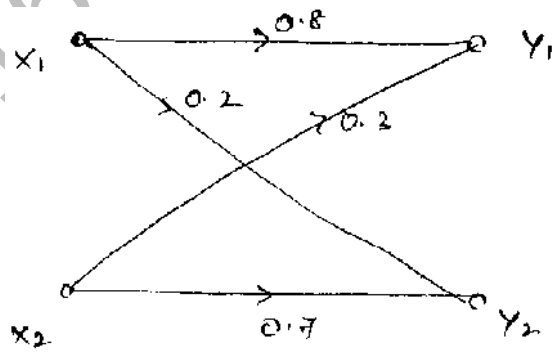
PART-A [25 Marks]

1. What are the errors that occurs in a delta modulation system (3)
2. What is the need of compander in digital communication (2)
3. Define mutual information and write the list of properties (2)
4. Define the terms (a) Entropy (b) uncertainty (c) Information (3)
5. What is the significance of minimum distance of block code? (2)
6. Determine (i) Generation matrix (ii) Parity check matrix (iii) coefficient matrix for a (3, 1) repeatition code (3)
7. How cyclic codes are different from linear block codes (2)
8. Compare different digital modulation schemes on power & bandwidth (3)
9. Discuss critically effect of ISI on the performance of digital transmission (2)
10. In DSSS system the data rate fb= 6 kbps and the chip rate f_e = 12 Mbps . What is the jamming margin if an output SNR of 10 db is required for a $p_e = 10^{-5}$? (3)

PART-B [50 Marks]

11. a) Explain the Shannon limit theorem (4)

    b) Find the mutual information and channel capacity of the channel shown in below figure with $P(x_1) = 0.6$ and $P(x_2) = 0.4$



12. a) Explain the working of PCM system with neat block diagram (6)

    b) Derive the expression for quantization error and SNR of PCM system (4)

13. Draw the block diagram of an encoder for a linear (15, 5) cyclic code having a generator polynomial $g(x) = 1 + x + x^2 + x^4 + x^5 + x^8 + x^{10}$ also find the syndrome for the code. Determine the code polynomial for the message polynomial $m(x) = 1 + x^3 + x^5$ (10)

…2

14. Explain the differentially coherent PSK with neat diagram using an example (10)

15 a) Discuss the frequency hopping spread spectrum techniques and explain the importance of coarse alignments in FHSS. (6)

b) Obtain Explain the generation of PN sequence and their properties (4)

16. a) What are code tree, Code trellis and state diagrams for convolution encode (6)

b) Compose M- ary PSK with M - ary QAM (4)

17. Write Short a note on:

a) BCH Codes (3)

b) M – ary signaling (4)

c) Prediction theory (3)

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Code No: 11144

FACULTY OF ENGINEERING

B.E. ¾ (M/P) II - Semester (Supple.) Examination, Nov/Dec 2018

Subject: Machine Design

Time: 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part A and any five questions from Part B

PART – A (10 x 2 ½ = 25 Marks)

1. Define the terms free length and spring index.
2. Mention the applications of the springs.
3. Sketch the bevel and worm gears and show the forces acting on it.
4. Differentiate between gear and belt drives.
5. Explain the bearing designation 6205.
6. Define the terms “Bearing modulus” and Sommerfold number”.
7. Why the area of the inlet valve port is made larger than the area of the exhaust value in an IC engine.
8. Name the possible modes of failures to be considered for the design of
   i) piston pin
   ii) Crank pin.
9. Mention the criteria for the design of C-clamp
10. Explain the various stresses induced in curved beams.

PART – B (5x10=50 Marks)

11. A Helical compression spring made of Oil Tempered Carbon Steel is subjected to a load which varies from 400N to 1000N. The spring index is 6 and the design factor of safety is 1.25. If the yield stress in shear is 770 MP a and Endurance stress in shear is 350 MP a, find i) size of the spring wire, ii) Diameter of the spring, iii) Free length of the spring. The modulus of rigidity for the spring material may be taken as 80KN/mm^2.
12. A pair of Helical Gears consists of 18 teeth pinion meshing with a 45 teeth gear An electrical motor of 75 KW running at 200 rpm is supplying power to pinion. The helix angle is 23^o and the normal pressure angle is 20^o. Determine Tangential, Radial and Axial loads between meshing teeth if the module is 6 mm in normal plane to the teeth.

Contd…2..

13. A full journal bearing of 50 mm diameter and 100 mm long has bearing pressure of 1.5 MP a, the spread of the journal is 1000rpm, ratio of journal diameter to Diametral clearance (d/c) is 1000. The bearing is lubricated with an oil whose viscosity at operating temperature 75^{o}C, determine
    i) Amount of Artificial cooling required
    ii) The mass of the lubricating oil required if the temperature difference at 12^{o}C, specific heat of the oil 1900 J/Kg/^{o}C take heat dissipation coefficient as 500 W/m^{2}/^{o}C.

14. The following data is given for the cap and bolts of big end of the connecting rod, engine speed 1500 rpm, length of the connecting rod 320 mm, length of the stroke 140 mm,Mass of the Reciprocating parts 1.75kg, length of the crank pin 54mm, diameter of the crank in pin 38 mm, permissible tensile stress for the bolts 120 MP a, permissible bending stress for the cap 120 MPa, calculate diameter of the bolts and thickness of the cap of the big end.

15. A crane hook is having circular cross section with diameter 100 mm. The distance between the line of action of the load and centroidal axis of the cross section is 60mm the material of the hook is 45C8 with yield strength of 400MP a and factor of safety is3.5. Determine the load carrying capacity of the crane hook.

16. A ball bearing is required to resist a radial load of 10KN and thrust load of 5KN. The average life of the bearing is to be 5000 Hours, with inner race rotation at 980 rpm. What basic dynamic load rating must be used in selecting bearing? If this bearing is to have a life of 5000 Hours at a reliability of 97%. What is the required basic dynamic load rating?

17. Write short notes with a sketch
    i. Piston skirt
    ii. Stresses induced in a flywheel
    iii. Properties of lubricants used in bearings.

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Code No. 11153

FACULTY OF ENGINEERING

B.E. 3/4 (A.E.) II - Semester (Suppl.) Examination, November / December 2018

Subject : Design of Automotive Components

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A & any five questions from Part-B.

PART – A (25 Marks)

1 Describe the whipping stresses in the connecting rod.
2 What is the effect of side thrust on IC Engine cylinder liner?
3 What is clash allowance in compression springs?
4 Explain the utility of center bolt, U-clamp, rebound clip and camber in a leaf spring.
5 What is the relationship between L50 and L10 life?
6 What are the two assumptions of Petroff's equation?
7 Sketch the spur and bevel gears and show the forces and their analysis.
8 What is crowing in pulley's?
9 Define silent chain.
10 Define speed ratio of a gear drive.

PART – B (50 Marks)

11 Determine the dimensions of an I-section connecting rod for a petrol engine from the following data: Diameter of the piston=110 mm, Mass of the reciprocating parts = 2 kg, Length of the connecting rod from center to center = 325 mm, Stroke length = 150 mm, Speed = 1500 rpm with permissible over speed of 2500 rpm, Compression ratio = 4 : 1, Maximum explosion pressure = 2.5 N/mm^2.

12 A safety value 40 mm diameter is to blow off at a pressure of 1.2 N/mm^2. It is held on its seat by a close coiled helical spring, with initial compression of 20mm. The maximum lift of the valve is 12 mm. Design a suitable compression spring of spring index 6. The ultimate strength of the wire is 1400 MPa. The permissible shear stress in 700 MPa and G is 81370 MPa. Calculate (a) Diameter of the spring wire (b) Mean coil diameter (c) Number of active turns.

13 Design a journal bearing for a centrifugal pump from the following data: Load on the journal = 20000 N ; Speed of the journal = 900 rpm ; Type of oil is SAE 10, for which the absolute viscosity at 55^oC = 0.017kg /m-s ; Ambient temperature of oil = 15.5^oC; Maximum bearing pressure for the pump = 1.5 N/mm^2. Calculate also mass of the lubricating oil required for artificial cooling, if rise of temperature of oil be limited to 10^oC. Heat dissipation coefficient = 1232 $W/m^2/^oC$.

14 A compressor running at 300 rev/min is driven by 15kW, 1200 rev/min motor through of 14 ½ ^{o} full depth gears. The center distance is 0.375m, the motor pinion is to be of C30 forged steel hardened and temper, and the driven gear is to be cast steel. Assuming medium shock condition ; (a) Determine module, the face width, and number of teeth on each gear. (b) Design the drive completely.

..2

15 A ball bearing is required to resist a radial of 10kN and a thrust load of 5kN. The average life of the bearing is to be 5000 hours, with inner race rotation at 980 rpm. What basic dynamic load rating must be used in selecting the bearing? If this bearing is to have a life of 5000 hours at a reliability of 97%. What is the required basic dynamic load rating?

16 A Semielliptical laminated spring is made of 5 mm thick steel plate 50 mm wide. The length between the supports is 665mm and the band is 65mm wide. The spring has two full length leaves and five graduates leaves. A central band of 1600 N is applied. Determine.
(a) The maximum stress in each set of leaves for an initial condition of no stress in the leaves.
(b) The maximum stress if initial stress is provided to cause equal stresses when loaded
(c) The deflection in above (a) and (b).

17 Write short notes on the following:
(a) Ray-diagram of a gear box
(b) Speed reducers in gear box
(c) Preventive measures to avoid gear tooth failure

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Code No. 11160

FACULTY OF ENGINEERING

B.E. 3/4 (CSE) II – Semester (Suppl.) Examination, November / December 2018

Subject: Computer Networks

Time: 3 Hours **Max.Marks: 75**

Note: Answer all questions from Part A and any five questions from Part B.

PART – A (25 Marks)

1	Define Optimality Principle.	(2M)
2	Mention any 3 differences between ISO-OSI and TCP/IP Architectures.	(3M)
3	Write basic idea behind NAT.	(2M)
4	Mention factors for Packet Fragmentation.	(3M)
5	Draw the diagram showing TCP Connection Release.	(3M)
6	List Elements of Transport protocols.	(2M)
7	What is the significance of SNMP.	(3M)
8	DNS uses UDP instead of TCP. If a DNS packet is lost, there is no automatic recovery. Does this cause a problem, and if so, how is it solved?	(2M)
9	Write short note on Byte ordering functions.	(3M)
10	Distinguish between non-blocking I/O and I/O multiplexing.	(2M)

PART – B (5x10 = 50 Marks)

11	a)	Distinguish between Leaky bucket algorithm and Token bucket algorithm.	(4M)
	b)	Illustrate Link state routing algorithm.	(6M)
12	a)	A large number of consecutive IP addresses are available starting at 198.16.0.0. Suppose that four organizations, A, B, C and D, request 4000, 2000, 4000, and 8000 addresses, respectively, and in that order. For each of these, give the first IP address assigned, the last IP address assigned, and the mask in the w.x.y.z/s notation.	(5M)
	b)	Discuss BGP-The exterior gateway routing protocol.	(5M)
13	a)	Illustrate TCP Congestion control.	(5M)
	b)	Describe Remote Procedure Call.	(5M)
14	a)	Describe Domain Resource Records.	(4M)
	b)	Explain SMTP and MIME.	(6M)
15		Illustrate Input/Output Multiplexing.	(10M)
16	a)	Discuss General Principles of Congestion Control Algorithms.	(5M)
	b)	Describe Internet Control Protocols.	(5M)
17		Write short notes on	
	a)	UDP Header.	(3M)
	b)	Communication Security	(3M)
	c)	Reserved ports.	(4M)

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Code No. 11162

FACULTY OF ENGINEERING

B.E. (I.T.) 3/4 II – Semester (Suppl.) Examination, November / December 2018

Subject : Computer Networks

Time : 3 Hours **Max. Marks: 75**

Note: Answer all questions from Part-A & any five questions from Part-B.

PART – A (25 Marks)

1 Why do we need computer network? Give any two applications of computer networks. (3)
2 What is connectionless internetworking? (2)
3 List the design issues of Network Layer. (2)
4 What is the purpose of mobile IP? (2)
5 Write the function of Internet super server. (2)
6 List the transparency issues with reference to RPC. (3)
7 What is the relationship between a domain name and an IP subnet number? Do all hosts on subnet have to be identified by the same name server? (3)
8 What do you mean by video on demand? (3)
9 What is DNS? Give the format of DNS resource record? (3)
10 Name the approaches to message authentication. (2)

PART – B (50 Marks)

11 (a) Write is layered network system? Describe the Layered Network Architecture. (5)
(b) Compare and contrast OSI model and TCP/IP model. (5)

12 (a) Explain Link state Routing algorithm. (6)
(b) Draw IP header format and explain each field. (4)

13 (a) Discuss OSPF protocol. (6)
(b) Explain the concept of tunneling. (4)

14 Explain connectionless scenario using socket system calls. (10)

15 (a) Describe RSA algorithm with an example. (5)
(b) Explain Pretty Good Privacy with the help of neat sketch. (5)

16 (a) Describe the architecture of WWW. (5)
(b) Explain about IP sec. (5)

17 Write short notes on the following:
(a) Sun RPC (4)
(b) VOIP (3)
(c) SSL (3)

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