S No. 8013 Roll No.

B.TECH (CE/ME)-3rd SEMESTER EXAMINATION; NOV./DEC.-2016
(SUBJECT:-COMPLEX ANALYSIS AND PROGRAMMING PAPER CODE-1301305/13030302)

Time: 03 Hours **Max. Marks: 50**

Instruction:

1. Write your Roll No. on the Question paper.
2. Candidate should ensure that they have been provided with the correct question paper. Complaints in this regard, if any, should be made within 15 minutes of the commencement of the exam. no complaint(s) will be entertained thereafter;
3. Attempt five (05) questions in all and Q. No. 1 is compulsory. Students are required to attempt four questions selection one from each unit in addition to Q. No.-1. Marks are indicated against each question.
4. Draw Diagram wherever required.

Q.1 Explain the following: (5x2=10)

a) Solve the linear programming problem graphically.

Maximize $Z = 2x + 3y$

Subject to the Constraints

$x+2y\leq 10$

$2x+y\leq 14$

$x,y\geq 0$

b) Separate into real and imaginary parts Log (2+i).

c) Define Analytic function.

d) Define properties of Normal distribution.

e) State Cauchy – Goursat theorem & write their application.

UNIT - I

Q.2 Using Simplex Method solves the given L.P.P. (10)

Maximize : $z=2x + 5y$

Subject to the constraints

$x+4y\leq 24$

$3x+y\leq 21$

$x+y\leq 9$

$x,y\geq 0$

Or

Q.3 Using Dual Simplex Method Solve the given L.P.P. (10)

Maximize : $z=-3x_1-x_2$

Subject to the constraints

$x_1+x_2\geq 1$

$2x_1+3x_2\geq 2$

$x,y\geq 0$

P.T.O.

UNIT - II

Q.4 a) Prove that the function sinhz is analytic and find its derivative. (6)

b) Determine the analytic function whose real part is e^{2x}(xcos2y-ysin2y). (4)

Or

Q.5 a) Show that f(z)=xy+iy is everywhere continuous but not analytic. (6)

b) Determine the analytic function w=u+iv, if v=log (x^2+y^2)+ x-2y (4)

UNIT - III

Q.6 a) Expand $\frac{1}{z2-3z+2}$ in the region 1z1<1. (6)

b) State Taylor's and Laurent's series. (4)

Or

Q.7 a) Find the sum of residues of the function f (z) = $\frac{\sin z}{z\cos z}$ (6)
at its pole inside the circle 1z1=2.

b) How to detect singular points. (4)

UNIT - IV

Q.8 a) A coin was tossed 400 times and the Head turned up 216 times.
Test the hypothesis that the coin is unbiased. (6)

b) Define level of significance. (4)

Or

Q.9 a) From the given table regarding the colour of Eye's of father and sons.
Test if the colour of Son eye's is associated with that of the father (chi square test)
Tabulate value of chi square at 5% level of significant at 1 d.f. is 3.841. (6)

Eye colour of son

Eye colour of Father	Light	Not Light
Light	471	51
Not Light	148	230

b) A bag X contains 5 white and 4 red balls and a bag Y contains 3 white and 2 red balls. One ball is drawn at random from one of the bag and it is found to be red. Find the probability that it was drawn from bag x. (4)

****

S No. 8011 Roll No.

B.TECH (CE/CSE/ME)-3rd SEM/ MCA-1st SEM EXAMINATION; NOV./DEC.-2016
(SUBJECT:- PSYCHOLOGY ; PAPER CODE-13010302/13020303/13030303/13050105)
COMMON PAPER FOR B.TECH & MCA

Time: 03 Hours **Max. Marks: 50**

Instruction:
1. Write your Roll No. on the Question paper.
2. Candidate should ensure that they have been provided with the correct question paper. Complaints in this regard, if any, should be made within 15 minutes of the commencement of the exam. no complaint(s) will be entertained thereafter;
3. Attempt five (05) questions in all and Q. No. 1 is compulsory. Students are required to attempt four questions from Q.No. 2 to 6.
4. Draw Diagram wherever required.

Q.1 Explain the following: (10x1=10)

a) Define learning.
b) What is perception?
c) What do you understand by term 'self-development'?
d) Explain delinquent behaviour.
e) Explain accommodation.
f) Define Terrorism.
g) What is prejudice?
h) Explain the concept of westernization.
i) What is social mobility?
j) Define creativity.

Q.2 a) Describe psychology as a science. Explain the scope of psychology. (5)
b) Define personality. Explain the types of personality. (5)

Q.3 a) What is Stress management? Discuss one technique of stress management. (5)
b) Describe concept of Well-being. How it can be improve? (5)

Q.4 a) Define sociology. Discuss importance of understanding social behaviour. (5)
b) Discuss co-operation. Describes causes of conflict. (5)

Q.5 a) Describe nature and types of social stratification. (5)
b) Define urbanization. Discuss effect of urbanization on Indian society. (5)

Q.6 a) Write a detail note on Child Abuse. (5)
b) Write a detail note on social disorganization. (5)

****

Sr. No. 8031 Roll No._____

B. TECH. (ME)- 3rd SEMESTER EXAMINATION;NOVEMBER/DECEMBER 2016
(SUBJECT:-ENGINEERING MECHANICS; PAPER CODE- 13030304)

TIME: 03:00 Hrs. **MAX. MARKS: 50**

Instructions: -

1. Write your Roll No. on the Question paper.
2. Candidate should ensure that they have been provided with the correct question paper. Complaints in this regard, if any, should be made within 15 minutes of the commencement of the exam. No complaint(s) will be entertained thereafter;
3. Attempt five (05) questions in all and Q.No. 1 is compulsory. Students are required to attempt four questions selecting one from each unit in addition to Q.No. 1. Marks are indicated against each question.
4. Draw diagram wherever required.

Q.1 Discuss the following: - (5x2–10)

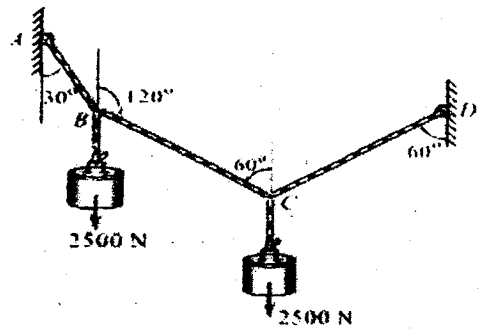
a) Explain principle of transmissibility
b) State varignon's theorem
c) State Coulumb's law of dry friction
d) Explain parallel axes theorem
e) What do you understand by Mechanical Advantage of a lifting machine?

UNIT-I

Q.2 a) State and derive Pappus and Guldinus theorem first and second. (2x5=10)
b) Derive and formula for the centroid of quarter circular area.

OR

Q.3 Two equal loads of 2500N are supported by a flexible string ABCD at points B & C as shown in the fig. Find the tension in the portion AB, BC and CD. (10)

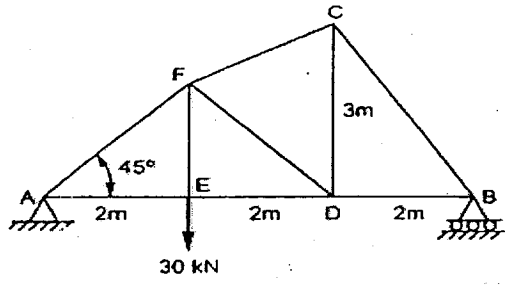


UNIT-II

Q.4 A 6m uniform ladder weighing 300N is placed against a vertical wall. Its inclination with the ground is 60^0. At what distance from the lower end of the ladder a man weighing 800N will climb before ladder start slipping. The coefficient of friction for all the contact surfaces is 0.2. (10)

OR

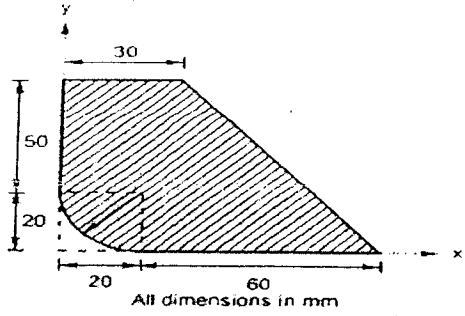
Q.5 Determine the forces in FC, FD & ED member of the give truss as shown in fig. using method of section. (10)



P.T.O.

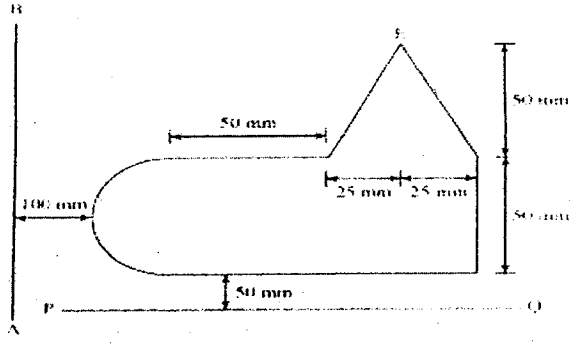
UNIT-III

Q.6 Determine the centroid of the given plane lamina as shown in fig. (10)



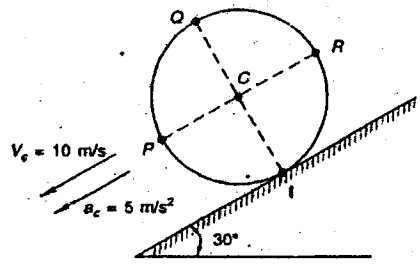
OR

Q.7 Determine the moment of inertia of the given area about the axis AB & PQ. (10)



UNIT-IV

Q.8 A wheel of radius 0.5m rolls without slip down an incline as shown in fig. at an instant the velocity and acceleration of the centre are 10m/s & 5m/s respectively. Determine the velocities of the point P,Q, R on the periphery. (10)



OR

Q.9 Four uniform rods , each of length 'a' and weight 'W' are hinged together to form a rhombus. A string of length 'b' joints the shorter diagonal. If one of the rods is supported in horizontal position, derive the expression for tension in the string using principle of virtual work. (10)

****

Sr. No:8032 Roll No:_____

B.TECH. (ME)-3rd SEMESTER EXAMINATION, NOV./DEC.-2016

(SUBJECT-MATERIALS ENGINEERING & TECHNOLOGY; PAPER CODE – 13030305)

Time: 3 Hours **Maximum Marks-50**

Instruction:

1. Write your Roll No. on the question paper.
2. Candidate should ensure that they have been provided with correct question paper. Complaint(s) in this regard, if any, should be made within 15 minutes of the commencements of the Exam. No complaints will be entertained thereafter.
3. Attempt five (5) questions in all and Question No. 1 is compulsory. Students are required to attempt four questions selection one from each unit in addition to Q.No.1 Marks are indicated against each question.
4. Draw diagram wherever required.

Q1. Answer all the followings: **(5x2=10)**

(a) Atomic Packing Factor
(b) Thermosetting and Thermoplastics
(c) Martempering and Austempering
(d) Fatigue and Endurance Limit
(e) Liver's Rule

UNIT-I

Q2. Copper has FCC structure and an atomic radius of 1.278Å. Calculate its density? Given atomic weight of copper as 63.5gm/mol and Avogadro's number as 0.602×10^{24} atom/mol. **(10)**

OR

Q3. What do you mean by single crystal and polycrystalline materials? Discuss the effect of imperfection on material properties. **(10)**

UNIT-II

Q4. What do you mean by phase diagram? Draw a neat TTT diagram and explain the term Pearlite, Martensite and Austenite. **(10)**

OR

Q5. Explain with neat sketch the Iron-Iron Carbide phase diagram? **(10)**

UNIT-III

Q6. What is Annealing Process? Discuss its type in detail. Also compare Annealing with Normalizing process. **(10)**

OR

Q7. Why Heat treatment is an essential process for surface modification? Discuss various surface heat treatment processes with example. **(10)**

UNIT-IV

Q8. Define Composite? Classify composite materials. Discuss advantage and limitations of metal matrix composites. **(10)**

OR

Q9. Explain the term True Stress and True Strain? Draw and discuss stress-strain diagram for mild steel. **(10)**

****

S No. 8033 Roll No._____

B.TECH (ME)-3rd SEMESTER EXAMINATION; NOV./DEC.-2016
(SUB.:- ENGINEERING THERMODYNAMICS ; PAPER CODE-13030306)

Time: 03 Hours **Max. Marks: 50**

Instruction:

1. Write your Roll No. on the Question paper.
2. Candidate should ensure that they have been provided with thes correct question paper. Complaints in this regard, if any, should be made within 15 minutes of the commencement of the exam. no complaint(s) will be entertained thereafter;
3. Attempt five (05) questions in all and Q. No. 1 is compulsory. Students are required to attempt four questions selecting one from each unit in addition to Q. No.-1. Marks are indicated against each question.
4. Draw Diagram wherever required.

Q.1 Write short Notes on the followings : (4x2.5=10)

a) Zeroth law of thermodynamics.

b) Mollier Chart with the neat graph.

c) Open, closed and isolated system.

d) Perpetual motion machine of the second kind.

UNIT - I

Q.2 Explain the steady flow process. Establish the equation for the application of steady flow energy equation in the turbine and pump. (10)

Or

Q.3 One kg of fluid enters a nozzle with velocity of 3300 m/min and enthalpy of 2990kj/kg. The enthalpy of the fluid at exit is 2760 kj/kg.

The nozzle is placed horizontally, neglect the heat loss from the nozzle.

Determine the following : (a) the velocity of the fluid at exit; (b) the mass flow rate, the inlet area of nozzle is $0.095m^2$ and specific volume at inlet is $0.19\ m^3/kg$; and (c) the exit area of the nozzle if the specific volume at exit is $0.5\ m^3/kg$. (10)

UNIT – II

Q.4 State the Kelvin-Plank and Clausius statements of the Second Law of Thermodynamics, and establish the equivalence between them. (10)

Or

P.T.O.

Q.5 12 tonnes of fish are stored in cold storage plant. The fish is supplied at a temperature of 27°C. The fish is stored in a cold storage which is maintained at -9°C. The freezing point of fish is -4°C. The specific heat of fish above freezing point is 2.93 kj/kgK. Latent heat of fish is 235 kj/kg. The power required to drive the plant is 100 kW. Determine (a) the time required to achieve cooling, (b) the capacity of the plant. Assume the actual COP of the plant as 0.5 of the Carnot COP. (10)

UNIT - III

Q.6 What are the processes involved in a Dual cycle? Derive an expression for the thermal efficiency of a Dual cycle. (10)

Or

Q.7 In a Brayton cycle the air enters the compressor at 1 bar and 25°C. The pressure leaving the compressor is 3 bar and temperature at turbine inlet is 650°C. Determine the following per kg of air: (a) Cycle efficiency; (b) Heat supplied to air; (c) work available; (d) Heat rejected in the cooler at the shaft; and (e) Temperature of air leaving the turbine. (10)

UNIT - IV

Q.8 Discuss the following : (4x2.5=10)

a) p-v-T surface of an ideal gas

b) Compressibility factor

c) Amagat's law of addictive volumes

d) Dalton's law of partial pressure

Or

Q.9 Describe with a neat sketch, the constructional and operational aspects of a Junkers gas calorimeter used for the determination of heating values. (10)

****

Sr. No. 8034 Roll No._____

B. TECH. (ME)- 3rd SEMESTER EXAMINATION; NOVEMBER/DECEMBER 2016
(SUBJECT:-FUNDAMENTAL OF MANUFACTURING PROCESS; PAPER CODE- 13030307)

TIME: 03:00 Hrs. **MAX. MARKS: 50**

Instructions: -

1. Write your Roll No. on the Question paper.
2. Candidate should ensure that they have been provided with the correct question paper. Complaints in this regard, if any, should be made within 15 minutes of the commencement of the exam. No complaint(s) will be entertained thereafter;
3. Attempt five (05) questions in all and Q.No. 1 is compulsory. Students are required to attempt four questions selection one from each unit in addition to Q.No. 1. Marks are indicated against each question.
4. Draw diagram wherever required.

Q1. Write the short on the following: - (4x2.5=10)

a) Extrusion and Smith Process
b) Powder metallurgy
c) Manufacturing cost
d) Pattern making.

UNIT-I

Q2. Brief investment casting with neat sketches and its merits and demerits. (10)

OR

Q.3 Explain fundamentals of metal casting and also explain the fluidity of molten metal and solidification time with neat sketches. (10)

UNIT-II

Q4. Write short note on Electro slag welding and electro gas welding with suitable diagrams and explain its merits and demerits. (10)

OR

Q5. Explain oxy fuel gas welding in detail with neat sketches and also explains electrodes. (10)

UNIT-II

Q6. Explain Electro hydraulic forming process in detail with neat sketches and its uses. (10)

OR

Q7. What do you understand by sheet metal forming process and its advantages and disadvantages? (10)

UNIT-IV

Q8. What are the properties of ferrous and non-ferrous materials? Explain in brief. (10)

OR

Q9. Describe sharing of Ceramics and also explain shaping of glass. (10)

****

Sr. No. 8012 Roll No_____

B.TECH (CE/CSE/ME) – 3RD SEMESTER EXAMINATIONS; NOV./DEC.- 2016

(SUB.: FOREIGN LANGUAGE GERMAN-I : PAPER CODE: 13010303/13020304/13030313)

TIME: 03:00 Hrs. **Max. Marks: 50**

Instructions:-

1. Write your Roll no. on the Question paper.
2. Candidate should ensure that they have been provided with the correct question paper. Complaints in this regards, If any, should be made within 15 minutes of the commencement of the exam. No complaint(s) will be entertained thereafter.
3. Attempt all questions. Part of a question should be attempted in sequence order. Marks are indicated against each question.
4. Draw Diagram wherever required.

Q.1. Write down the forms of conjugation (ie., ich , du, er/es/ sie , Sie , wir and Ihr) of the following verbs (any Five) . **(10)**

(a) sagen	(b) machen	(c) gehen	(d) nehmen
(c) arbeiten	(f) sehen	(g) trinken	(h) bringen

Q.2. Fill in the blanks (any Ten) using the verbs given in the braces: **(10)**

(a) cr _____ in Dclhi ?	(wohncn)
(b) Was_____ Sie ?	(essen)
(c) Was _____ er ?	(machen)
(d) Ich _____ Deutsch ?	(lernen)
(e) Was_____ Ihr Name ?	(sein)
(f) Bitte _____ Si e mir ein Buch .	(geben)
(g) Wie _____ das wetter ?	(sein)
(h) Wieviel _____ es ?	(kosten)
(i) Was _____du?	(sagen)
(j) _____ sind Marie und Mark ?	(wo/ wer / wie)
(k) Kommst _____ aus Amerika ?	(Sie/du/er)
(l) Wir _____ nach Hause ?	(gehen)

Q.3 Write down the plural forms of the following words (ANY TEN): **(10)**

(a) Blume	(b) Vater	(c) Spiegel	(d) Buch
(e) Baum	(f) Mutter	(g) Junge	(h) Haus
(i) Auto	(j) Mädchen	(k) Apfel	(l) Sohn

Q.4 Translate the following sentences from English to German: **(10)**

(a) My name is Robin.
(b) I am going to Germany.
(c) Where do you live?
(d) Good Morning
(e) I am a student.
(f) I speak German.
(g) Good Night
(h) What is your name?
(i) I see a Dog.
(j) You are a Boy.

P.T.O.

Q.5 Answers the following questions: (10)

(a) Wie ist Ihr name ?
(b) Wer ist hier ?
(c) Wo wohnen Sie ?
(d) Wie ist das Wetter ?
(e) Wo sind Marie und Mark?

Q.6 Write down in German (counting). (10)

(a) 1	(f) 6
(b) 2	(g) 7
(c) 3	(h) 8
(d) 4	(i) 9
(e) 5	(j) 10

****