

**FACULTY OF ENGINEERING****B.E. II/IV (Civil) I – Semester (Backlog) Examination, Nov./Dec. 2018****Subject: Engineering Geology****Time: 3 Hours****Max. Marks: 75****Note: Answer all questions from Part A & and any FIVE questions from Part – B.****PART – A (10x2.5=20 Marks)**

- 1) Differentiate mineral and rock.
- 2) Write physical properties of mineral quartz.
- 3) Brief the development and amygdaloidal structure in rock basalt.
- 4) Define fold in a rock and draw a neat sketch of it with label the parts.
- 5) Write check list of instruments used in electrical resistivity survey.
- 6) Calculate apparent resistivity for Wenner electrode configuration for which electro distance in 2 mts voltage difference is 20V, current is 30 amps.
- 7) What are the benefits of butters dam over gravity dam?
- 8) Give any two problems associated with dam and reservoirs.
- 9) What is stand up time in tunnels?
- 10) List out any two stabilization techniques for land slope.

**PART – B (5x10=50 Marks)**

- |  |    |
|--|----|
| 11 a) Explain a case history of dam failure in India.  | 5M |
| b) Describe in brief the various textures in igneous rocks.  | 5M |
| 12 a) Write the causes and effects of folding.   | 5M |
| b) What are the three important clay minerals and add a note on their engineering properties?  | 5M |
| 13 a) Explain geological maps, aerial photographs and their significance in the site investigation.  | 5M |
| b) Describe the seismic refraction method in sub-surface exploration.  | 5M |
| 14 a) What are the geological consideration in the selection of concrete, highway and runway aggregate, building stones decorative stones? | 5M |
| b) What is the water tightness of the reservoir?   | 5M |
| 15 a) Describe over break and pay line in the tunnels.   | 5M |
| b) Write the classification of earthquakes, explain them in brief.   | 5M |
| 16 a) Write short note on the following:   | 5M |
| i) Application of GIS and remote sensing   |    |
| ii) Effects of Tsunami on civil engineering structures   |    |
| b) Write the preventive measures for landslides.   | 5M |
| 17 a) Describe in brief about ground water exploration methods.  | 5M |
| b) Give the order of minerals with respect their susceptibility to weathering.   | 5M |

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## FACULTY OF ENGINEERING

BE 2/4 (EE/Inst.) I-Semester (Backlog) Examination, November / December 2018

Subject : Electrical Measurements and instruments

Time: 3 Hours

Max. Marks : 75

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

### PART-A (25 Marks)

- 1 The resistance of an unknown resistance is determined by wheat stone bridge. 3  
 The solution for the unknown resistance is given by  $R_4 = \frac{R_1 R_2}{R_3}$ , where limiting values of resistance  $R_1 = 500\Omega \pm 1\%$  ;  $R_2 = 615\Omega \pm 1\%$  ; and  $R_3 = 100\Omega \pm 0.5\%$  Calculate  
 a) The limiting error of the unknown resistor in ohm  
 b) The limiting error in percent of unknown resistor
- 2 Define a) Sensitivity and b) Deflection factor 2
- 3 Give the reason, why gravity controlled instruments have cramped scale at lower ends? 3
- 4 Why energy meters require inductive load adjustment. 2
- 5 List the difficulties in measurement of high resistance. 3
- 6 In a measurement of resistance by the substitution method a standard resistance of  $100K\Omega$  is used. The galvanometer has a resistance of  $200\Omega$  and gives the following deflections:  
 i) With unknown resistance : 46 divisions  
 ii) With standard resistance : 40 divisions 2
- 7 What are the limitations of Desauty's bridge and how are they overcome by using a modified form of Desauty's bridge. 2
- 8 How is a leakage factor in dynamo – electric machinery determined? 3
- 9 A slide wire potentiometer has a battery of 4 V and negligible internal resistance. The resistance of slide wire is  $100\Omega$  and its length 200cm. A standard cell of 1.018 V is used for standardizing the potentiometer and the rheostat is adjusted so that balance is obtained when the sliding contact is at 101.8cm. 3  
 a) Find the working current of the slide of the slide wire and the rheostat setting.  
 b) If the slide wire has divisions marked in mm and each division can be interpolated to one fifth, calculate the resolution of the instrument
- 10 Define the following terms as used for instrument transformers 2  
 a) Nominal ratio                      b) Ratio correction factor

### PART-B (50 Marks)

- 11 a) Define the classification between "Direct Measuring Instruments" and "Comparison Type Instruments". Give suitable examples for each case. 5+5

-2-

b) An Instrument spring is made up of phosphor bronze strip has a length of 400 mm, a width of 0.5 mm and thickness of 0.08mm. If the modulus elasticity of phosphorus bronze is  $120\text{GN/m}^2$ . Estimate the torque exerted by a spring for a deflection of a)  $60^\circ$  and b)  $90^\circ$ .

12 a) The control spring of moving iron ammeter exerts a torque of  $0.5 \times 10^{-6}$  Nm/degree when the deflection is  $52^\circ$ . The inductance of the coil varies with pointer deflection according to:

Deflection (degree)	20	40	60	80
Inductance ( $\mu\text{H}$ )	659	702	752	792

Determine the current passing through the meter.

b) Prove that the true power =  $\frac{\cos W}{\cos W \cos(W - S)}$  x actual wattmeter reading for an

electrodynamometer type of wattmeters, where  $\cos$  is power factor of the circuit. 5+5

13 a) A watthour meter is calibrated to measure energy on a 250 V supply. On test a steady current of 15A is passed through it for 5 hours at unity power factor. If the meter readings before and after test are 8234.21k Wh and 8253.13kWh respectively, calculate the percentage error. If the spindle turns through 290 revolutions during 5 minutes when a current of 20A is passing through the meter at 250V and 0.87 power factor, calculate the meter constant.

b) Explain with a neat diagram the working principle of Electro dynamometer type synchroscope

5+5

14 The circuit for measurement of effective resistance and self inductance of an iron-cored coil is as follows: arm ab: the unknown impedance; arm bc : a pure resistor  $R_3 = 10\Omega$ ; arm cd : a loss less capacitor,  $C_2 = 0.135\mu\text{F}$ ; arm da : a capacitor  $C_4 = 1\mu\text{F}$  in series with a resistance  $R_4 = 842\Omega$ . Under the balance condition calculate the effective value of resistance and inductance at a supply frequency of 100Hz. Derive the equations of balance and draw the phasordigram.

10

15 a) Describe the method for determination of B-H curve of a magnetic material using Step by Step method

b) Explain the principle of Ballistic Galvanometer and also derive an expression for deflection of this meter.

5+5

16 a) Describe the construction and working of a co-ordinate type potentiometer. Explain how an unknown voltage can be measured?

b) A current transformer with 5 primary turns has a secondary burden consisting of a resistance  $0.16\Omega$  and an inductive reactance of  $0.12\Omega$ . When the primary current is 200A, the magnetizing current is 1.5A and the iron loss current is 0.4A Determine the number of secondary turns needed to make the current ratio 100:1.

5+5

17 Explain any two from the following

a) Strain Gauges      b) Mechanical resonance type frequency meter.

c) Lissajous figures

5+5

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## FACULTY OF ENGINEERING

B.E. 2/4 (ECE) I – Semester (Backlog) Examination, November / December 2018

Subject: Electronic Devices

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 Determine a.c resistance of a semiconductor diode with a forward current of 1 mA at room temperature.
- 2 Define: (a) % line regulation, (b) % Load regulation
- 3 Explain the  $f$  -filter operation of rectifiers.
- 4 In a bridge rectifier value of secondary voltage is  $220\sqrt{2}$  V. Determine: a) No load output D.C voltage (b) D.C current flowing through load.
- 5 Describe early effect and write its consequences
- 6 Draw the h-parameter equivalent circuit of Common base transistor configuration
- 7 What is thermal runaway. Write the condition to avoid thermal runaway.
- 8 Write about TRIAC and draw its V-I characteristics
- 9 Compare BJT and FET
- 10 If 1 mA, is the change in the drain current for a corresponding change of 0.1V in  $V_{GS}$ , determine the transconductance.

### PART – B (5x10 = 50 Marks)

- 11 a) Explain the switching characteristics of a P-N junction diode with neat diagrams. (6M)  
 b) Explain the working of a Zener Voltage Regulator. (4M)
- 12 a) Describe the working of L-section filter and also derive the expression for ripple factor. Also write the significance of Bleeder resistor. (7M)  
 b) Differentiate Centre-tapped Full Wave rectifier and Bridge rectifier (3M)
- 13 Design self bias circuit for a CE amplifier to establish an operating point of (12V, 2 mA) and stability factor  $S \leq 5$ . Consider  $V_{CC} = 24$  V,  $V_{BE} = 0.7$ ,  $\beta = 50$  and  $R_C = 4.7$  K $\Omega$ . (10M)
- 14 A CE amplifier having a voltage source of internal resistance  $R_S = 800\Omega$ , and is terminated by a load impedance of 2K $\Omega$ . The h-parameters are  $h_{ie} = 1.1$  K $\Omega$ ,  $h_{fe} = 50$ ,  $h_{oe} = 25 \mu A/V$  and  $h_{re} = 2.5 \times 10^{-4}$ . Determine  $A_i$ ,  $R_i$ ,  $A_v$  and  $R_o$  using exact analysis. Also Derive Power gain. (10M)
- 15 a) Describe the working of JFET and explain its transfer and drain characteristics. (7M)  
 b) Prove that  $g_m = \frac{-2}{V_p} \sqrt{I_D I_{DSS}}$  (3M)
- 16 a) Explain the working and V-I characteristics of UJT. (5M)  
 b) Explain how transistor acts as an amplifier. (5M)
- 17 Write short notes on:
  - a) Diode capacitances (3M)
  - b) Half Wave Rectifier (4M)
  - c) MOSFET (3M)

**FACULTY OF ENGINEERING****B.E 2/4 (M/P) I-Semester (Backlog) Examination, November / December 2018****Subject: Machine Drawing****Time: 3 Hours****Max. Marks: 75****Note: Answer all questions from Part-A and Part-B****PART-A (5 x 5 = 25 Marks)**

1. Draw any two views of a hexagonal headed bolt of  $\phi 20\text{M} \times 200\text{mm}$  size.
2. Sketch an eye bolt and indicate proportions. Take  $D=20\text{mm}$ .
3. Sketch a sectional front view and top view of a double riveted zigzag lap joint to join two plates of thickness of 12mm. indicate all proportions in terms of rivet diameter.
4. Draw simple sketch of a  $\text{Ø}20\text{mm}$  stud with 100mm long left hand threads on one side and 80mm long right hand thread on other side with a shank portion of 50mm in between the threads.
5. Draw to a suitable scale (i) Sectional front view (ii) Side view from the left, shown in fig. 1 sectioned at middle of the part.

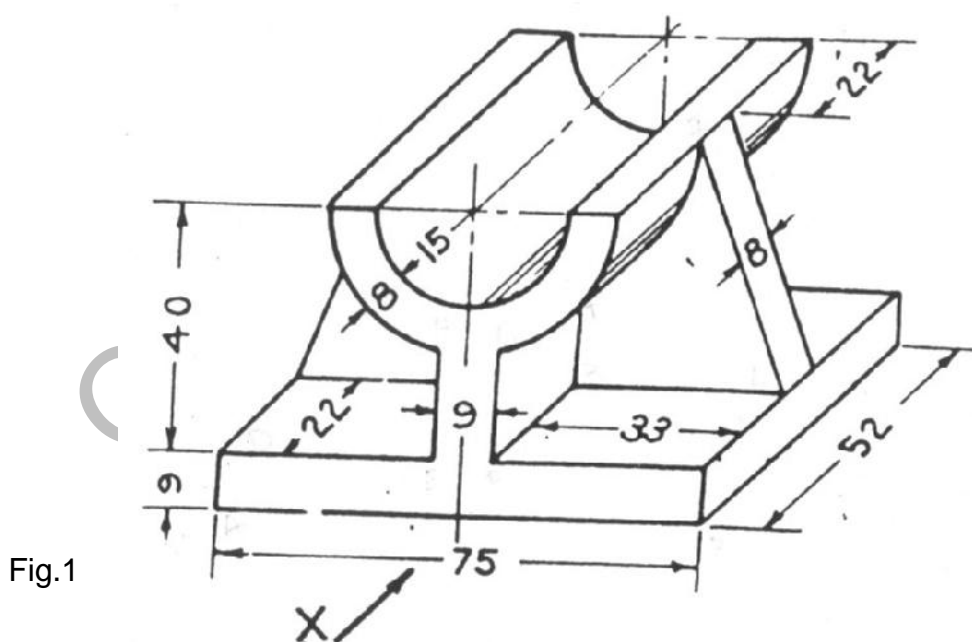
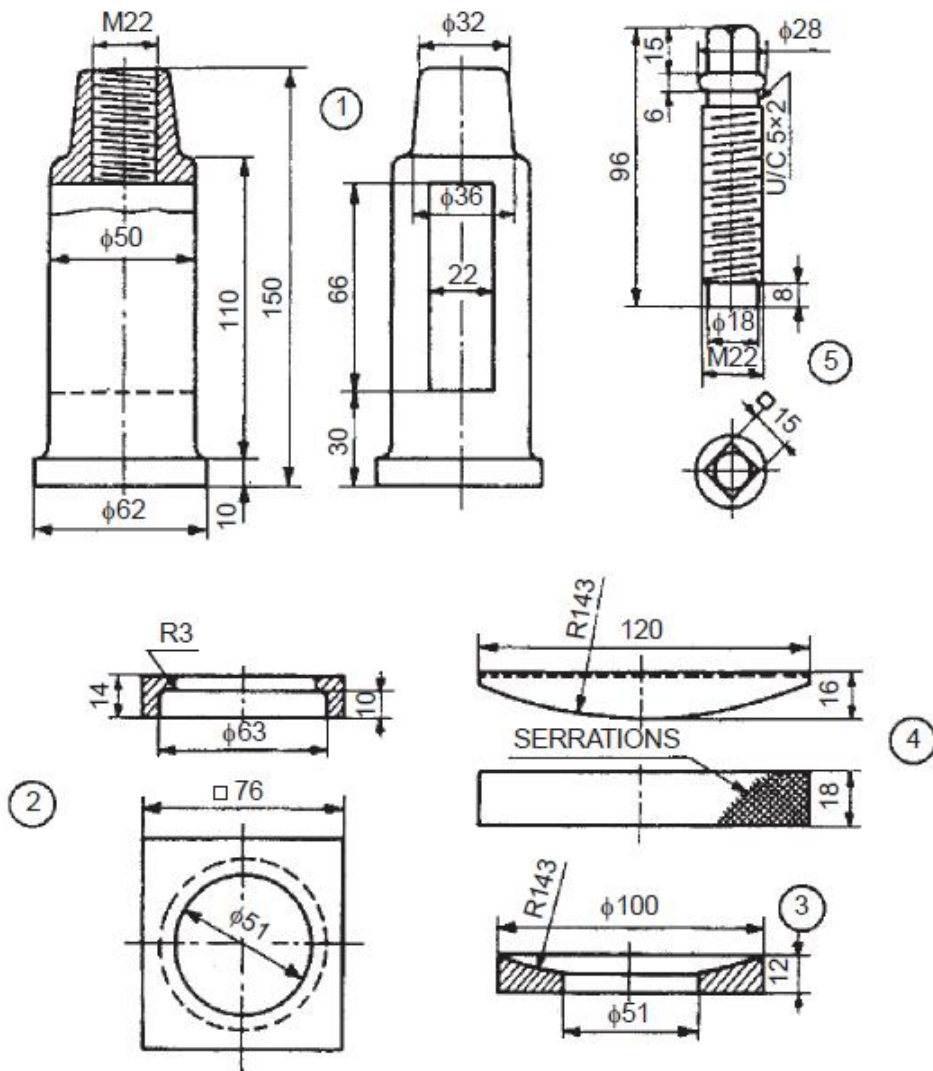


Fig.1

**Part B (50 Marks)**

6. The details of a lathe square tool post are shown in Fig. 2. Assemble the parts and draw, (i) sectional view from the front and (ii) view from above.

-2-



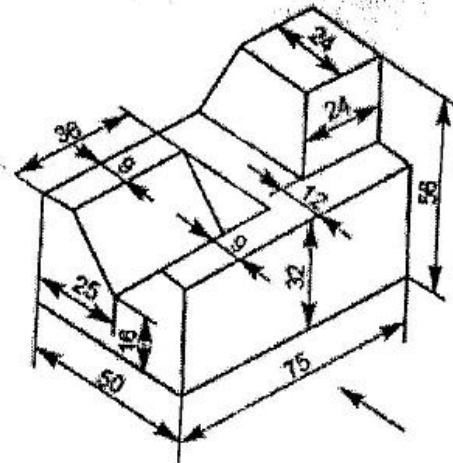
## Parts list

No.	Name	Matl	Qty
1	Pillar	MCS	1
2	Block	MCS	1
3	Ring	MS	1
4	Wedge	MCS	1
5	Screw	TS	1

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**FACULTY OF ENGINEERING****B.E. 2/4 I Semester (AE) (Backlog) Examination, Nov./Dec. 2018****Subject: Automotive Engineering Drawing****Time: 3 Hours****Max. Marks: 75****Note: Answer all questions from Part A and Part B. Assume any missing data suitable and mention clearly****PART – A (25 Marks)****(Answer all questions)**

1. List different types of lines used in engineering drawing and give their applications.
2. Sketch a single strap double riveted butt joint for 9 mm thick plates.
3. Sketch the two views of hexagonal headed bolt of diameter 25 mm with a hexagonal nut with washer in position.
4. Sketch the sectional front view of a flanged coupled for 50 mm diameter shaft.
5. Draw the front view and top view for the figure shown below.



(All dimensions are in mm)

Cont.... 2

**PART – B (50 Marks)**

- 6 Assemble all the components show in figure 2 to form fuel injector assembly and draw  
 (a) Full sectional Front view  
 (b) Top view

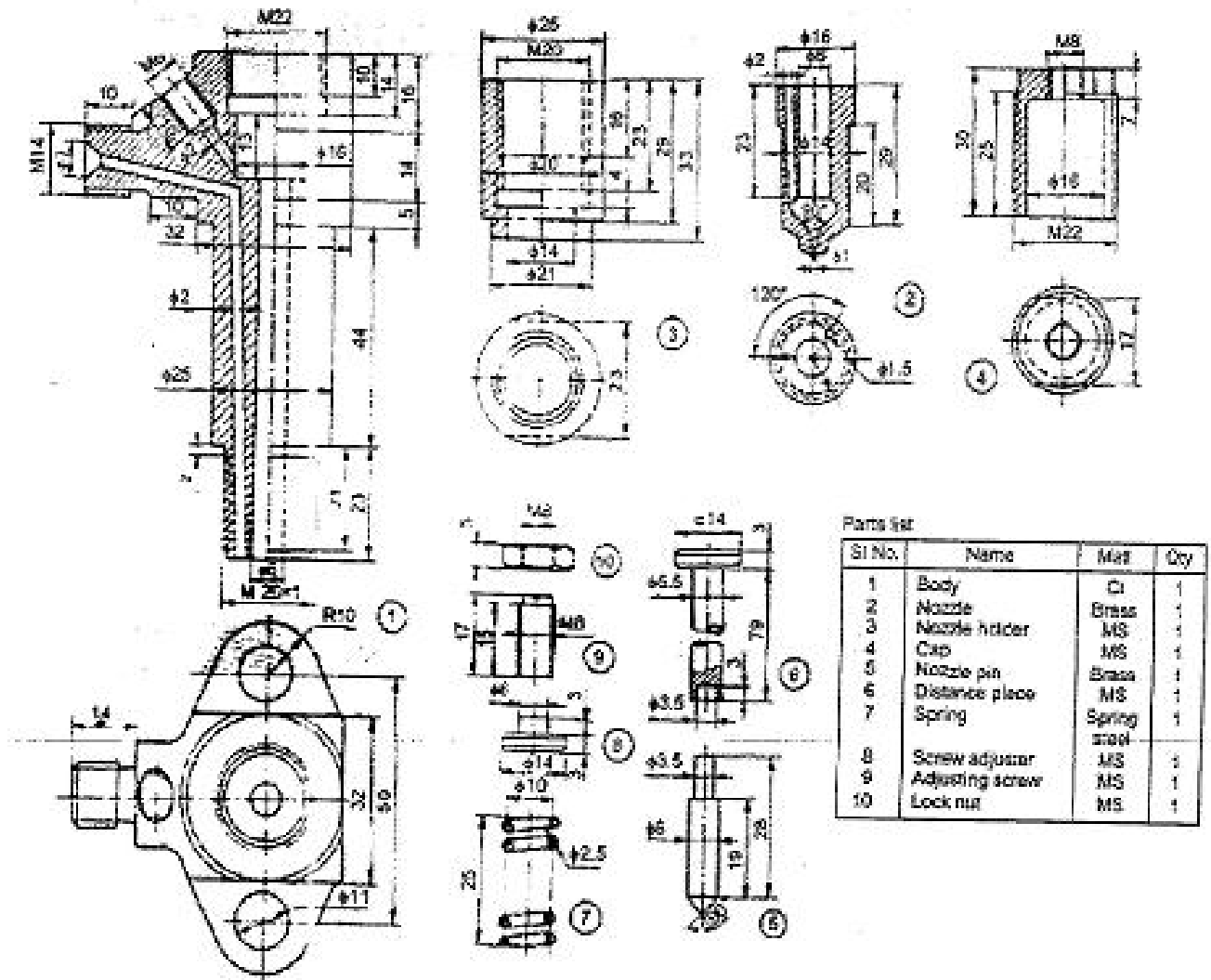


Fig. 2 Fuel injector

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**FACULTY OF ENGINEERING**  
**B.E 2/4 (CSE) I-Semester (Backlog) Examination, Nov./Dec. 2018**

**Subject: Computer Architecture**

**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 Write an RTL to describe stack operation. (2)
- 2 What is the role of Instruction register and program counter? (3)
- 3 What is an interrupt? List the various types of interrupts. (3)
- 4 Explain RISC characteristics. (2)
- 5 What is pipelining? What is its main advantage? (2)
- 6 Explain addition/subtraction of 2's complement data with numerical example. (3)
- 7 Illustrate the role of Input Output Processor (IOP) with block diagram. (2)
- 8 Distinguish between asynchronous data transfer and synchronous data transfer. (3)
- 9 Differentiate between RAM and ROM. (3)
- 10 What is Hit ratio? (2)

**PART-B (5x10=50 Marks)**

- 11 Draw the block diagram of ALU. Explain the operations performed by it in detail. (10)
- 12 Explain the different types of addressing modes with suitable examples. (10)
- 13 (a) Explain Instruction Pipelining and a measure of gain achieved. (5)  
 (b) Explain addition and subtraction with sign magnitude data. (5)
- 14 What is DMA? Explain the role of DMA Controller. (10)
- 15 (a) Explain the Memory connection to CPU with a neat diagram. (7)  
 (b) Explain about Memory Hierarchy. (3)
- 16 (a) Explain about Vector processing. (5)  
 (b) Explain instruction cycle with the help of a flow chart. (5)
- 17 Write a short notes on : (10)  
 (a) Magnetic discs.  
 (b) Reverse polish notation and its importance in performing operations.

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**FACULTY OF ENGINEERING****B.E. II/IV (IT) I Semester Backlog Examination, Nov./Dec. 2018****Subject: Electrical Circuits and Machines****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 Derive the equation for the average value for a sinusoidal source. 2
- 2 Derive the expression for the energy stored in a capacitor. 3
- 3 Three resistances 5 , 10 and 7 are connected in parallel. If the total current taken is 12A, find the current through each resistor. Is continuous at  $z=0$  3
- 4 Define the slip. What is the value of the slip. When the Induction motors is at stand still. 2
- 5 Explain why a single phase Induction motor is not a self starting motor. 3
- 6 Compare the conventional and brushless DC motor. 2
- 7 Write the application of DC motor. 2
- 8  $V = V \angle 20^\circ$ ,  $I = I \angle -30^\circ$  A Determine the power factor. 3
- 9 Define the form factor and peak factor related to ac circuits. 2
- 10 Explain the principle of operation of Brushless DC motor. 3

**PART – B (10x5=50 Marks)**

- .11. (a) With a neat sketch explain the concept of self inductance and mutual inductance. 4
- (b) Two coils having 150 and 200 turns respectively are wound side by side on a closed circuit of a section of  $150\text{cm}^2$  and mean length of 300 cm. Determine the mutual inductance between the coils and EMF induced in the second coil, if current changes from 0 to 10A in the first coil in 0.02 seconds. Relative Permeability of iron=2000 6
12. (a) Explain the working Principle of Single phase transformer 4
- (b) A single phase 2200/250V, 50Hz transformer has a net core area of  $36\text{cm}^2$  and a flux density of  $0.6\text{Wb/m}^2$  Calculate the number of turns in primary and secondary. 6
13. (a) Derive the EMF equation of a Dc Generator. 5
- (b) A 230 v dc shunt motor takes at no load and runs at 1000 r.p.m. Calculate the speed when loaded and taking a current of 30A. The armature and field resistances are 0.2 and 230 respectively. 5

..2..

14. Explain the method of measurement of power in 3 phase circuits by using two watt meters by drawing the phaser diagram. Also derive the expression for  $\tan \phi$  for different conditions of '  $\phi$  '.
15. (a) Write the advantages of Star connected system for three phase circuits. 4  
(b) With a neat vector diagram derive the relation between the line and phase voltage in star connected system. 6
16. (a) With a neat sketch Explain the working of 3 point starter. 5  
(b) Explain the speed control of Dc motor by flux Control Method. 5
17. Write short notes on  
(a) Commutator 3  
(b) Co-efficient of coupling 3  
(c) Essential Parts of a DC machine. 4

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## FACULTY OF ENGINEERING

BE II-Semester (CBCS) (Suppl.) Examination, November / December 2018

Subject: Engineering Mechanics – II

Time : 3 Hours

Max. Marks: 70

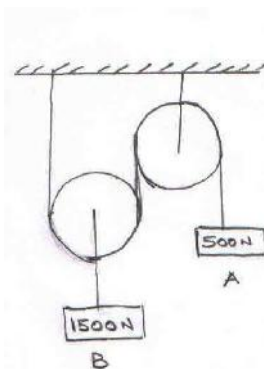
**Note: Answer all Questions from Part – A, & Any five questions from Part – B**

### PART – A (10 x 2 = 20 Marks)

1. Mass Moment of inertia of Solid Circular cylinder about Vertical axis is \_\_\_\_\_.
2. Define Virtual Work.
3. What are the various types of rigid body motion.
4. Write expression for Horizontal range of Projection.
5. State D' Alembert's Principle.
6. State the equations of equilibrium of a rigid body experiencing a planar motion.
7. Write work energy equation applied to fixed axis rotation.
8. A body of Mass 0.5kg moving with a constant velocity of 2M/s. Find the work done in order to bring it to rest in a distance of 2m.
9. Write Impulse Momentum equation.
10. Define coefficient of restitution.

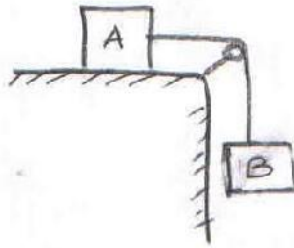
### PART – B (5 x 10 = 50 Marks)

11. Find Mass Moment of inertia of Solid cone of height  $h$  and radius  $R$  at base about axis of rotation. 10
12. A Projectile is fired from top of a Cliff 100m high with a velocity of 450m/s. directed at  $45^\circ$  to horizontal. Find range on a horizontal plane through base of Cliff. 10
13. Determine the tension in the String and acceleration of block A and B weighing 1500N and 500N connected by an inextensible string as shown in Fig. Assume pulleys as functionless and weightless. 10



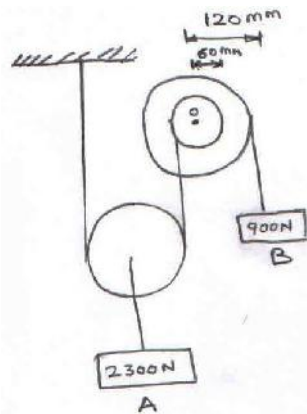
14. Two blocks A = 200N and B = 100N are connected by a string as shown in Fig. If the system is released from rest and the block B falls through a Vertical distance of 1m. What is the Velocity acquired by it and also by block A Take  $\mu = 0.25$  between the block A and Plane. 10

-2-



15. Find the velocity of block B, after 6 sec starting from rest.

10



16. a) A Weight  $W$  is suspended from a Vertical spring. If the Weight is pulled down by  $x$  m from its equilibrium position and released. Determine the velocity when it returns to its equilibrium position.

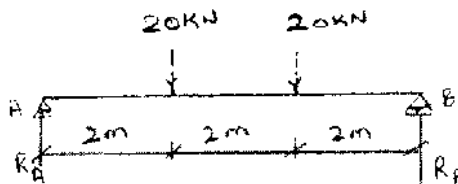
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b) Ball A of mass 1kg moving with a velocity of 2m/s strikes directly on a ball 'B' of Mass 2kg at rest. The ball A, after striking comes to rest. Find the velocity of ball 'B' after striking and coefficient of restitution.

5

17. a) Determine reactions  $R_A$  and  $R_B$  developed in the Beam shown.

10



b) A projectile is fired horizontally from a point 300mm above ground with initial velocity of 108m/s find the range.

c) Explain Kinematic relation.

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**FACULTY OF ENGINEERING****B.E. II-Semester (CBCS) (Suppl.) Examination, November / December 2018****Subject: Elements of Mechanical Engineering****Time: 3 Hours****Max. Marks: 70****Note: Answer All Questions From Part - A and Any Five Questions From Part-B.****PART-A (10 X 2 = 20 MARKS)**

1. Define closed system and open system
2. What are the deficiencies of first law of thermodynamics
3. Define Heat Engine and Heat Pump
4. Explain IP and BP as applied to I.C. engine
5. State Fourier's law of heat conduction and write the S.I. units of all the terms
6. Differentiate four points between parallel flow and counter flow heat exchanger
7. Write about the concept of Black body for formulation
8. List out the advantages and disadvantages of Gear drives
9. Define slip and its effects on belt drive
10. Distinguish between welding, brazing and soldering

**PART-B (5 x 10 = 50 MARKS)**

11. a) Derive steady flow energy equation for an open system and list out assumptions made in it (6)
- b) A heat engine receives heat at the rate of 1500 kJ/min. and gives an Output of 8.2 kw. Determine Thermal efficiency and rate of heat rejection (4)
12. a) Distinguish between the following: (6)
  - (i) S.I. engine and C.I engine
  - (ii) petrol engine and diesel engine
- b) Explain the valve timing diagram for 4 stroke CI engine (4)
13. (a) Derive the expression for the work done in a single stage compressor neglecting the effect of clearance: (6)
  - (i) When the compression follows the law  $PV^n = \text{const.}$
  - (ii) When the compression is isothermal
- b) Define clearance volume, mechanical efficiency, overall efficiency and volumetric efficiency of a single-stage compressor (4)
14. a) Derive an expression for the LMTD for counter flow heat exchanger (4)
- b) If the inner and outer surface temperatures of simple brick wall are  $40^\circ\text{C}$  and  $20^\circ\text{C}$ . Calculate the rate of heat transfer per  $\text{m}^2$  of surface area of the wall having a thickness of 250mm. Assume K for brick as  $0.52 \text{ W/m}^\circ\text{C}$  (6)
15. a) Sketch and explain Compound and Reverted gear train (5)
- b) Derive an expression for the length of belt in open belt drive (5)
16. a) Explain different gas flames with neat sketches (5)
- b) Describe various rolling processes (5)
17. Write short notes on the following:
  - a) Reversible and irreversible process (3)
  - b) Condition for max. power transmission of flat belt drive (4)
  - c) Milling operations (3)

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## FACULTY OF ENGINEERING

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

Subject : Basic Circuit analysis

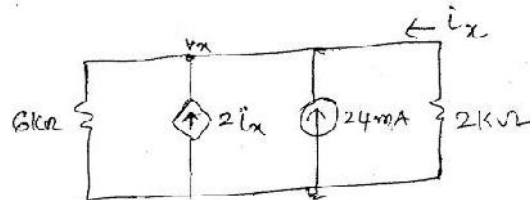
Time : 3 Hours

Max Marks : 70

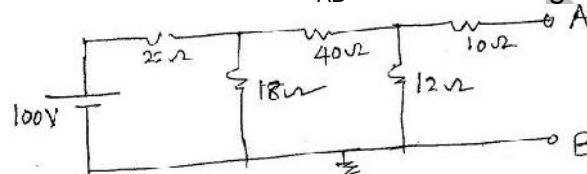
Note: Answer all questions of Part – A & Any five questions from Part – B.

### Part – A (20 Marks)

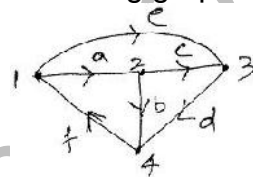
- 1 Find  $V_x$  and  $I_x$  in the following Circuit?



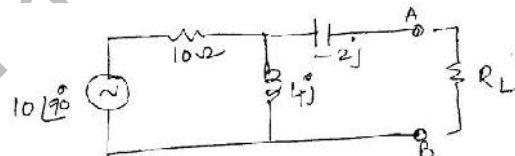
- 2 Find the voltage between AB Terminals  $V_{AB}$  in the following circuit?



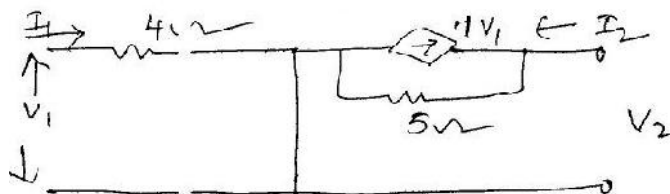
- 3 Find the incidence matrix of the following graph?



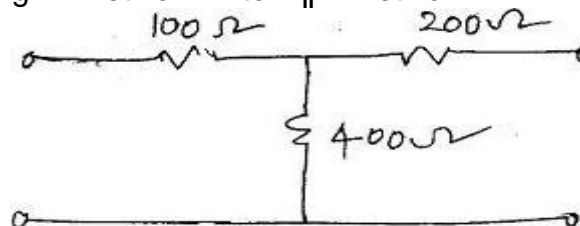
- 4 Explain briefly about power triangle?  
5 In the following circuit find the condition for maximum power transfer when the load is resistive



- 6 Find 'h' Parameters of the following Two port network?

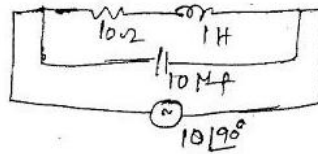


- 7 Derive the condition for symmetry in terms of 'Z' parameters?  
8 Convert the following 'T' Network in to  $\pi$  - network



-2-

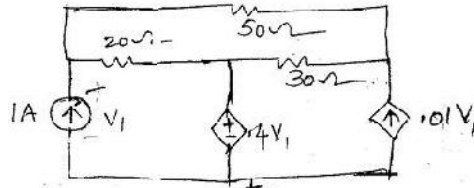
9 Find the resonant frequency of the following circuit?



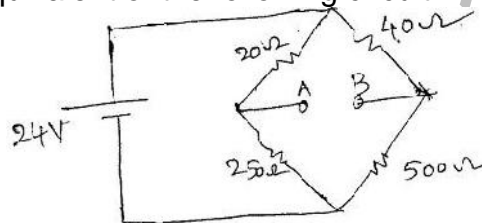
10 Explain briefly about zero state response?

**PART B (50 Marks)**

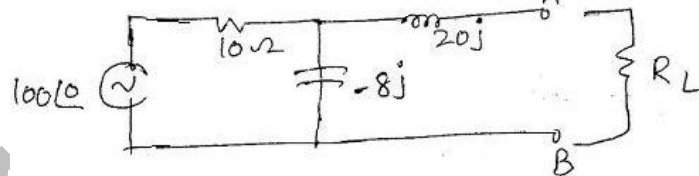
11 a) Find  $V_1$  and power supplied by the dependent source ?



b) Find the Thevenin's equivalent of the following circuit?

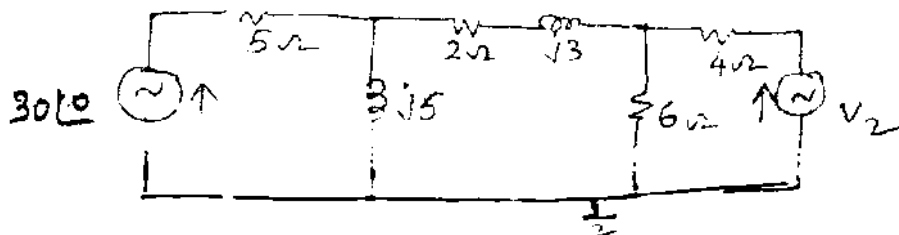


12 a) Find the condition for maximum power transfer and also find maximum power delivered to the load in the following circuit when the load is pure resistive?

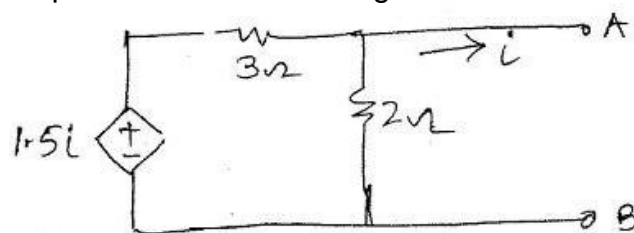


b) Prove that maximum energy stored in capacitor is  $CV^2$

13 a) For the circuit determine the value of  $V_2$  Such That current in the  $(2+j3) \Omega$  impedance is zero



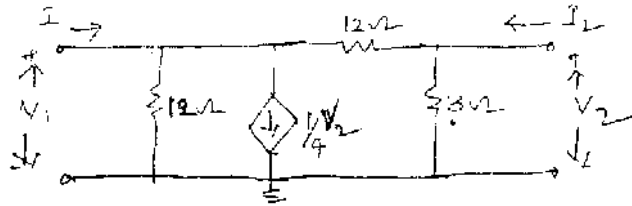
b) Find the Norton's equivalent of the following circuit?



(5)



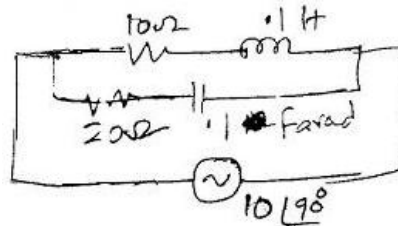
14 a) Find 'Y' Parameters of the following network?



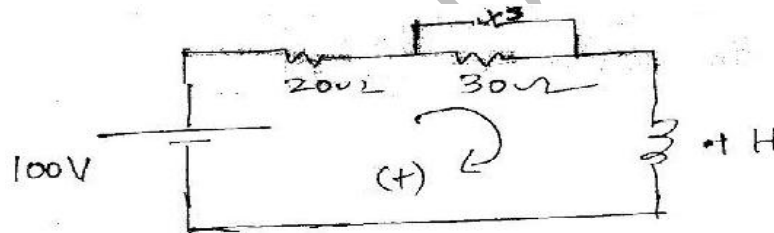
b) Find the condition for reciprocity in terms of 'Y' Parameters .

15 a) Derive the relation between quality factor and Band width of a series resonant circuit?

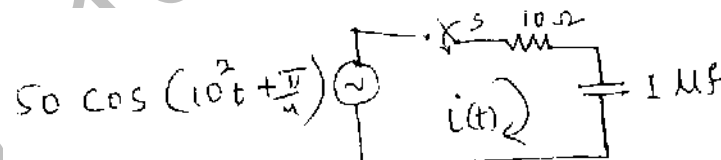
b) Find the resonant frequency for the following circuit?



16 a) Find the complete current when equation I (t) in the following circuit when the switch closed at t = 0



b) Find the complete solution for the current when the switch 'S' is closed at t = 0, applied voltage is  $v(t) = 50 \cos(10^2 t + \frac{\pi}{4})$  Resistance  $R = 100 \Omega$   $C = 1 \mu f$



17 Answer any two of the following

a) The 'Z' Parameters of the two port network are  $Z_{11} = 10 \Omega$ ,  $Z_{12} = 8 \Omega$ ,  $Z_{21} = 12 \Omega$ ,  $Z_{22} = 10 \Omega$  find its equivalent 'T' Network?

b) Find the output equation V (t) of a high pass "R-C" circuit for a step Voltage input.

c) Explain briefly about Inter connection of two Port networks?

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**FACULTY OF ENGINEERING****B.E II-Semester (CBCS) (Suppl.) Examination, November / December 2018****Subject : Object Oriented Programming Using C++****Time : 3 Hours****Max Marks : 70****Note: Answer all questions of Part – A & Any five questions from Part – B.****Part - A (20 Marks)**

- 1 State the important features of object oriented programming (2)
- 2 Define expressions. Give the operator precedence table (2)
- 3 Explain arrow operator (2)
- 4 Can I overload the destructors for my class? Support your answer (2)
- 5 What are the advantages and disadvantages of using friend functions (2)
- 6 What are abstract classes (2)
- 7 Define structures. Give example (2)
- 8 What is the difference between static array and dynamic array? (2)
- 9 Discuss class templates (2)
- 10 What is virtual function? Define (2)

**Part - B(5 X 10 = 50 Marks)**

- 11 (a) What are the steps involved in object oriented design and explain. (5)  
(b) Write a program to generate Fibonacci series using recursive function (5)
- 12 (a) What are the testing and debugging functions? (5)  
(b) Write a C++ program to find the maximum and minimum number among n numbers using for loop (5)
- 13 Write a C++ program to create a class STUDENT with data members USN, name and age. Using inheritance ,create class UGSTUDENT having fields semester, fees and stipend. Enter data for at least 5 students and compute the semester wise average age for UG students. (10)
- 14 (a) Write short notes on i) Hierarchical inheritance and ii) Hybrid inheritance. (5)  
(b) Write a program to illustrate the constructors and destructors (5)
- 15 What is polymorphism in C++? How this concept helps programmers? Explain in detail with suitable example. (10)
- 16 (a) Write C++ program to insert an element in a single –linked list (5)  
(b) Write a program to implement queue using linked list (5)
- 17 (a) Explain the C++ style solution for handling exceptions (8)  
(b) Write a short note about visibility modifier 'Protected'? (2)