

Reg. No.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**B.E / B.Tech DEGREE INTERNAL ASSESSMENT EXAMINATION I,
AUGUST 2014**

BRANCH: CIVIL ENGINEERING

SEMESTER:III

(Regulation : 2013)

CE6301 ENGINEERING GEOLOGY

Time : 3 Hours

Answer ALL Questions

Max.Marks : 100

PART – A (10 x 2 = 20 Marks)

1. Give a brief account of the Earth's interior.
2. What are the effects of weathering on the engineering properties of rocks?
3. Define Mohorovicic and Gutenberg discontinuity.
4. What is spheroidal weathering?
5. What is meant by a seismic zone?
6. What are the physical properties of minerals?
7. What is meant by lustre and streak?
8. What is the difference between cleavage and fracture?
9. What is meant by crystallization?
10. List the properties of mica.

PART– B (5 x 16 = 80 Marks)

11. a) Explain the work of a river and describe the various erosional and depositional landforms created by a river.
OR
b) How are earthquakes caused? Give an account of the earthquake belts in India.
12. a) (i) Describe the theory of plate tectonics.
(ii) Write a note on the physical and chemical weathering processes
OR
b) Write an essay on the erosional and depositional features of wind.
13. a) a) Give a detailed account of geological work of ground water.
OR
b) What are the various physical properties of minerals. Give examples for each property and describe them in detail.
14. a) Describe the properties of feldspar group of minerals with examples.
OR
b) Describe the composition, properties, occurrence and uses of
 - i. Calcite and its varieties
 - ii. Hornblende and its varieties
15. a) Explain in detail the Quartz group of minerals
OR
b) Describe the properties of Pyroxene group of minerals with examples.

Reg. No.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**B.E / B.Tech DEGREE INTERNAL ASSESSMENT EXAMINATION I,
AUGUST 2014**

**BRANCH: COMPUTER SCIENCE AND ENGINEERING/
INFORMATION TECHNOLOGY**

SEMESTER:III

(Regulation : 2013)

CS 6301 – PROGRAMMING AND DATA STRUCTURES II

Time : 3 Hours

Answer ALL Questions

Max.Marks : 100

PART – A (10 x 2 = 20 Marks)

1. What are objects and class?
2. What is the need for initialization of objects using constructors?
3. Explain the multiple meanings of the operators << and >> in C++ and their precedence
4. What is the difference between pointer and reference?
5. Define Friend function with its rule.
6. How will you overload Unary and Binary operator using Friend functions?
7. Write at least four rules for Operator overloading
8. What is polymorphism? What are its types?
9. Write the prototype for a typical pure virtual function
10. Differentiate multiple inheritance and multilevel inheritance

PART-B (5 x 16 = 80 Marks)

11. a) (i) Explain the idea of Classes, Data abstraction and encapsulation.

(ii) Write a C++ program that inputs two numbers and outputs the largest number using class. [8]

(OR)

b) (i) Consider a Bank Account class with Acc No. and balance as data members. Write a C++ program to implement the member functions get_Account_Details () and display_Account_Details (). Also write a suitable main function. [10]

(ii) Write a C++ program to explain how the member functions can be accessed using pointers. [6]

12. a) Explain the basic concepts of object-oriented programming with an example program. [16]

(OR)

b) Write a C++ program that

(i) Calculates and prints the sum of the integers from 1 to 10

(ii) To calculate x raised to the power y. [8 + 8]

13. a) Explain in detail the storage classes in C++ using example [16]

(OR)

b)(i) Explain runtime polymorphism with an example [10]

(ii) How is function overloading different from operator overloading. [6]

14. a) (i) Consider a Fruit Basket class with no. of Apples and no. of Mangoes as data members. Overload the '+' operator to add two objects of this class. [8]

(ii) What are the copy constructors and explain with example? [8]

(OR)

b) (i) What are the rules to be followed in function overloading? [6]

(ii) Write a C++ program that can take either two integers or two floating point numbers and outputs the smallest number using class, friend functions and function overloading. [10]

15. a)(i) Explain the need for pure virtual functions. [4]

(ii) Write a C++ program for calculating the area of rectangle and circle using run-time polymorphism. [12]

(OR)

b) Discuss the different types of inheritance supported in C++ with suitable illustration. [16]

Reg. No.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**B.E / B.Tech DEGREE INTERNAL ASSESSMENT EXAMINATION I,
AUGUST 2014**

BRANCH: ELECTRONICS AND COMMUNICATION ENGINEERING

SEMESTER:III

(Regulation : 2013)

EC6301 - OBJECT ORIENTED PROGRAMMING AND DATA STRUCTURES

Time : 3 Hours

Answer ALL Questions

Max.Marks : 100

PART – A (10 x 2 = 20 Marks)

1. What is constructor?
2. How is a class declared in C++?
3. What do you mean by friend function?
4. What is data encapsulation? Give example.
5. What is the use of scope resolution operator?
6. What are virtual destructors?
7. What is the use of virtual function in C++?
8. Difference between abstract class and concrete class
9. What are multilevel and multiple inheritances?
10. What do you mean by This Pointer?

PART – B (5 x 16 = 80 Marks)

11. a) Illustrate the use of copy constructors and function overloading with C++ programming.
(OR)
b) Specify a class called complex to represent complex numbers. Overload +, - and * operators when working on the object of this class.
12. a) Briefly explain about oops concepts.
(OR)
b) Write short notes on container classes and proxy classes.
13. a) What is parameterized constructor? Explain with example.
(OR)
b) Write short notes on Dynamic Memory Allocation and Static Class Members.
- 14.a) Explain the concept of overriding. How it differs from overloading?
(OR)
b) Briefly explain about abstract base classes and concrete classes.
15. a) Define inheritance? Explain the different types of inheritances with example program
(OR)
b) Write short notes on constructors and destructors in derived classes.

Reg. No.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**B.E / B.Tech DEGREE INTERNAL ASSESSMENT EXAMINATION I,
AUGUST 2014**

BRANCH: ELECTRICAL AND ELECTRONICS ENGINEERING

SEMESTER:III

(Regulation : 2013)

EC 6202 – ELECTRONIC DEVICES AND CIRCUITS

Time : 3 Hours

Answer ALL Questions

Max.Marks : 100

PART – A (10 x 2 = 20 Marks)

1. What is meant by depletion region in a PN junction diode?
2. A silicon PN junction has reverse saturation current of 10nA at V_T is 26mV.
Calculate the junction current when the applied Voltage is 0.7V in forward bias.
3. What is break down? What are its types?
4. What is Full Wave Rectifier?
5. What is Zener diode? Draw its Symbol?
6. Transistor means “transfer Resistance”, explain this?
7. Define Transconductance and amplification factor in JFET?
8. Why FET is called voltage controlled device and the BJT called a current controlled device?
9. Compare JFET with BJT?
10. List the merits of IGBT?

PART – B (5 x 16 = 80 Marks)

11. a) Explain the Centre-tapped full-wave rectifier with necessary waveforms and also derive the necessary expressions? (with and without Filter) (16)
OR
b) i) Explain the working and VI characteristics of Zener diode? (10)
ii) Explain the current equation of a PN diode? Derive the junction Voltage? (6)
12. a) With neat diagram explain the VI characteristics of PN junction diode?(16)
OR
b) i) Explain in detail about the Laser diode? (8)
ii) Explain the Transition Capacitance and also derive the expressions for C_T (8)
13. a) i) A HWR having resistive load of 1000Ω , it rectifies an ac voltage of 325V peak value and the diode has a forward resistance of 100Ω . Calculate a) peak, average and rms value of current, and b) efficiency? (8)
ii) Explain the operation of a zener diode shunt voltage regulator. (8)
OR
b) With neat diagram explain the Input and Output characteristics of a transistor in CC configuration? List out the comparisons between CE, CB and CC? (16)
14. a) Explain the working of n- channel and p- channel depletion MOSFET. Sketch its typical characteristics. (16)
OR
b) What is UJT? And Explain the working of UJT as a relaxation oscillator with necessary waveforms and equations. (16)
15. a) Explain the construction, principle of operation, characteristics and applications of IGBT? (16)
OR
b) Explain the construction and operation of SCR with neat sketches and characteristics curves. (16)

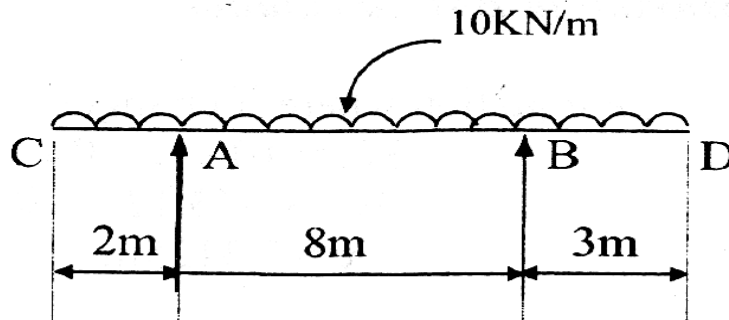
the intensity of the stress in the rod when the common temperature has fallen to 20°C. the value of the young's modulus for steel and the gun metal are $2.1 \times 10^5 \text{ N/mm}^2$ and $1 \times 10^5 \text{ N/mm}^2$ respectively. The co-efficient of liner expansion for steel is $12 \times 10^{-6}/^\circ\text{C}$ and for gun metal is $20 \times 10^{-6}/^\circ\text{C}$.

13. (a) A rectangular block material is subjected to a tensile stress of 90 N/mm^2 along x-axis and a compressive stress of 45 N/mm^2 on a plane at right angle to it, together with shear stresses of 80 N/mm^2 on the same plane calculate.
- The direction of principal planes.
 - The magnitude of principal stresses.
 - The magnitude of the greatest shear stress.

(OR)

- (b) A beam 8m long is simply supported at the ends and carries a uniformly distributed load of 1500 N/m and three concentrated load of 1000 N , 2000 N and 4000 N acting respectively at the left quarter point, centre point and right quarter point. Draw SFD and BMD.

14. (a) Draw the shear force and bending moment diagram for the loaded beam shown in fig.

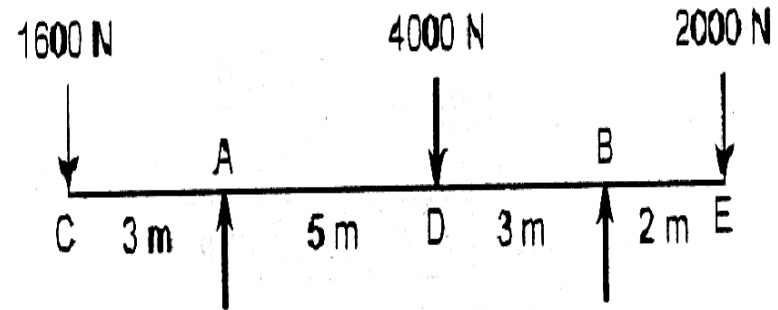


(OR)

- (b) A Cantilever 1.5 m long carries a load of 2 tons at its free end, and another load 1 ton at a distance of 0.5 m from the free end. Draw shear force and bending moment diagrams for the cantilever.

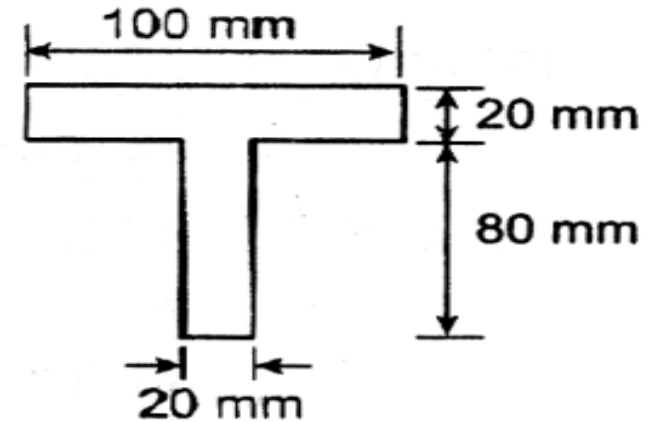
3

15. (a) Draw the SF and BM diagrams for the beam shown in the figure. Determine the points of contra flexure.



(OR)

- (b) The cast iron beam is of T- section as show in the figure. The beam is simply supported on a span of 6m. the beam carries a uniformly distributed load of 2 kN/m on the entire length (span). Determine the maximum tensile and maximum compressive stress



4

Reg. No.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

**B.E / B.Tech DEGREE INTERNAL ASSESSMENT EXAMINATION I,
AUGUST 2014**

BRANCH: AUTOMOBILE ENGINEERING

SEMESTER:III

(Regulation : 2013)

AT 6301 – AUTOMOTIVE ENGINES

Time : 3 Hours

Answer ALL Questions

Max.Marks : 100

PART – A (10 x 2 = 20 Marks)

1. Classify the internal combustion engines based on cylinder arrangement and give examples
2. Write the drawbacks of 2 stroke powered engines when compared to 4 stroke powered engines.
3. What is meant by firing order? Possible firing order used in 4 and 6 cylinder engines?
4. What are the various types of combustion chambers used in SI engines?
5. The compression ratio diesel engine is 16.If cut-off place 8 % stroke volume, Calculate the air-standard efficiency of cycle.
6. What is the principle of a carburetor? Name the major parts in it.
7. Illustrate various types of nozzles used in diesel engines.
8. Why is rich mixture required for idling?
9. Draw the injection rate characteristic of multi-hole nozzle and state its advantages.
10. What is the difference between a constant choke carburetor and a constant vacuum carburetor?

Part – B (5 x 16 = 80 marks)

11. a) Describe the construction and working of 4 stroke SI and CI engine with neat sketch
OR
b) Explain in detail about the Construction of engines with its components sketches.
12. a) Describe the construction and working of 2 stroke SI and compare SI and CI engines.
OR
b) Explain various process of Otto , Diesel and Dual Cycles with p-V and T-s diagrams.
13. a) Compare four stroke and two stroke cycle engines and bring out their relative merits and demerits
OR
b) Discuss the air –fuel ratio requirements of a petrol engine from no load to full load.
14. a) (i) Write a short note on emission characteristics of SI engine with air-fuel ratio. (4)
(ii) Describe with neat sketch the working of S.U carburetor. (12)
OR
b) What is the Purpose of governor in diesel engine? Explain the principle and working of pneumatic governor with a neat sketch.
15. a) Explain in detail about the working of fuel injection pump and fuel injector
OR
b) Explain in detail about the unit injector and common rail injection systems.