

17/08/23

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(C) (SVSU): 2022-2023/R

Enrollment No.

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**B. TECH. (ME/EEE/ECE/FT)
II YEAR, III SEMESTER EXAMINATION
ENVIRONMENTAL SCIENCES**

[Time : 3:00 Hours]

[Max. Marks : 70]

NOTE:- ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS.

QUESTION NO. 1: ATTEMPT ANY FOUR PARTS

(4*3=12)

- A) Describe the effects of Water pollution.
- B) Explain THE Biodiversity at national level.
- C) Define Values of biodiversity in detail.
- D) Define the ecology?
- E) Define the term Mining.
- F) Explain Noise pollution

QUESTION NO. 2: ATTEMPT ANY THREE PARTS.

(3*4=12)

- A) Describe the energy flow in ecosystem?
- B) Discuss the global warming in detail
- C) Describe India as a mega diverse nation
- D) Define forest resource?

QUESTION NO. 3: ATTEMPT ANY THREE PARTS.

(3*6=18)

- A) Describe the role of NGT.
- B) Define the Tehri Dam conflict and Silent valley movement in details?
- C) Discuss the EIA process in detail.
- D) Describe the effects of Air pollution on human being.

QUESTION NO. 4: ATTEMPT ANY TWO PARTS.

(2*7=14)

- A) Define the term ecological pyramid? Describe different type of ecological pyramid with examples?
- B) Define and explain the multidisciplinary nature of Environmental studies?
- C) What do you understand by carbon foot prints? How can we contribute to reduce them?

QUESTION NO. 5: ATTEMPT ANY TWO PARTS.

(2*7=14)

- A) Define the importance of environmental education. How public awareness can help in conservation of environment?
- B) Define solid waste and its types. What are the causes of solid waste generation? Explain different techniques used in solid waste management.
- C) Define atmosphere? Discuss the various layers of atmosphere?

B. TECH. (ME, FT, EEE)
II YEAR, III SEMESTER EXAMINATION
ENGINEERING MECHANICS

[Time : 3:00 Hours]

[Max. Marks : 70]

NOTE:- ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS.

Q.1. Attempt any two parts of the following:

(7x2)=14

- Explain following terms
 - law of parallelogram of forces
 - Limiting Friction
 - Dynamic friction
- Explain the types of force systems with neat sketch.
- Two forces of 100 N and 150 N are acting simultaneously at a point. What is the resultant of these two forces, if the angle between them is 45° ?

Q.2. Attempt any two of the following

(7x2)=14

- What is beam? Write different types of beam with neat sketch.
- State clearly the difference between a perfect frame and an imperfect frame.
- Draw shear force and bending moment diagram of given figure 1.

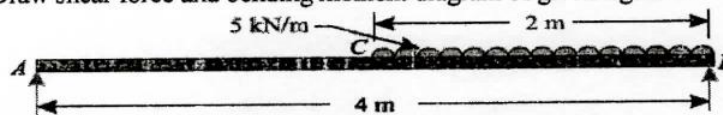


Figure: 1

Q.3. Attempt any two of the following

(7x2) =14

- State and prove the parallel axis theorem?
- Figure 1 shows a Warren girder consisting of seven members each of 3 m length freely supported at its end points. The girder is loaded at B and C as shown. Find the forces in all the members of the girder, indicating whether the force is compressive or tensile.
- Find the moment of inertia of a T-section with flange as 150 mm $\times$ 50 mm and web as 150 mm $\times$ 50 mm about X-X and Y-Y axes through the centre of gravity of the section. Fig. 2.

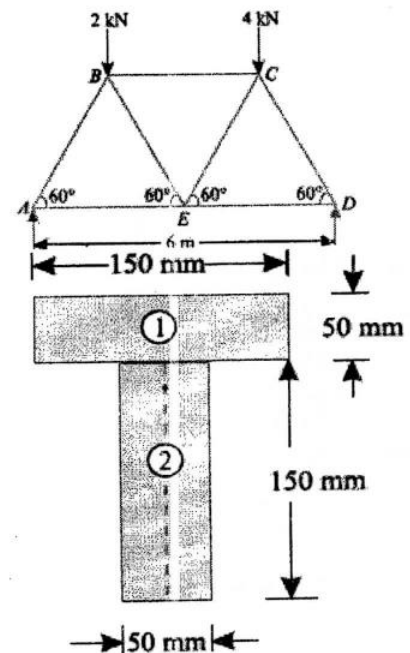


Figure: 3

Q.4. Attempt any two of the following

(7x2) =14

- A train travelling at 27 km.p.h is accelerated at the rate of 0.5 m/s^2 . What is the distance travelled by the train in 12 seconds?
- Describe the phenomenon of combined motion of rotation and translation. Give few examples.
- A car moves along a straight line whose equation of motion is given by $s = 12t + 3t^2 - 2t^3$, where (s) is in metres and (t) is in seconds. Calculate velocity and acceleration at start

Q.5. Attempt any two of the following

(7x2) =14

- Define stress, strain, shear stress, shear strain, Poisson's ratio.
- A wire, 4mm in diameter, 4m long is subjected to an axial pull of 1890N. It is stretched by 3mm under the axial pull. Find the value of stress, strain and modulus of elasticity.
- Describe the assumptions made in theory of pure bending. Derive Equation for pure bending with usual notations.
