**Code No.15292/AICTE**

# FACULTY OF ENGINEERING

## B.E. II- Semester (AICTE) (Main) Examination, October 2021

## Subject: Environmental Sciences

**Time: 2 hours** **Max. Marks: 70**

**Note: (i) First question is compulsory and answer any three questions from the remaining six questions.**
**(ii) Answer to each question must be written at one place only and in the same order as they occur in the question paper.**
**(iii) Missing data, if any, may suitably be assume.**

**Answer any four questions.** **(4x4=16M)**

1(a) Define environment and environmental studies
(b) What is an ecological pyramid and list the different types of ecological pyramids
(a) List the biogeographic zones in India.
(b) Define air pollution and thermal pollution
(c) Define environmental ethics
(d) List the issues involved in enforcement of environmental legislation
(e) Sketch the disaster management cycle

**(3x18=54M)**

2(a) Describe conflicts over water
(b)Discuss the various benefis and problems of dams

3(a) Sketch the universal model of energy flow in an ecosystem
(b) Describe the pond ecosystem with the help of a sketch

4(a) Discuss briefly the national and global efforts for the conservation of biodiversity
(b) Discuss the various threats to biodiversity

5(a) Define noise pollution and discuss the various measures to control noise pollution
(b) Discuss the causes, effects and control measures of noise pollution

6(a) Discuss the causes, effects and control measures of Ozone layer depletion
(b) Define disaster and discuss the various types of disasters

7(a) Discuss disaster management in India with the help of a flowchart.
(b) Discuss the various values of biodiversity with the help of a neat sketch.

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**Code No. 15278/AICTE**

# FACULTY OF ENGINEERING

**B.E. II - Semester (AICTE) (Main) Examination, October 2021**

**Subject: Engineering Mechanics**

**Time: 2 Hours** **Max. Marks: 70**

**Note: i) First Question is compulsory and answer any three questions from the remaining six questions.**
**ii) Answers to each question must be written at one place only and in the same order as they occur in the question paper.**
iii) **Missing data, if any, may suitably be assumed.**

**Answer any four questions from the following (4 x 4 = 16 Marks)**

1 (a) Enumerate the different system of forces.
(b) Define Lami's theorem and Principle of Transmissibility.
(c) State the laws of Friction.
(d) Find the Polar Moment of Inertia & Radius of Gyration of a circular section of diameter 30mm.
(e) State the assumptions made in analysis of Truss.
(f) A body is moving with a velocity of 3m/s. After 5 seconds the velocity of the body was 13m/s. Determine its acceleration.
(g) Define work energy principle & Impulse momentum method.

**(3x18 =54 Marks)**

2 (a) Determine the resultant of coplanar concurrent force system shown in Fig.1.
(b) Referring the Fig.2, determine the components of forces P and F along the X-Y axes parallel & perpendicular to the plane.

3 (a) Forces 35kN, 25kN, 28kN & 113kN are concurrent at origin and are respectively directed through the points A (2, 1,6) B (4,-4,6), C (-3,-3,1) and D (6,1, -3) Determine the resultant of the system.
(b) A horizontal bar 16m long and of negligible weight rests on rough inclined planes as shown in Fig3. If the angle of friction is 15˚, how close t oB the 2000N force may be applied before slipping impends.

4 Analyse the truss shown in Fig.4 using method of joints. All members are of 4m length.

5 (a) Derive an expression to determine moment of inertia of a semi-circular area about its diametric base.
(b) State and prove parallel axis theorem.

6 (a) A ball is thrown so that it just clears a 8m wall 32m away. If it is left the hand 1.5m above the ground level and at an angle of 60° with the horizontal. Evaluate initial velocity of the ball.
(b) In a system of frictionless pulleys carries two weights hung by cords as shown in Fig.5. Find the tension in the cords and acceleration of the system.

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7 (a) A body of mass 80kg resting on a horizontal surface is subjected to a force of 400N applied at 45˚ with horizontal acting upward left. If coefficient of friction between block and surface is 0.2, determine the velocity of block after it has moved 4m.

(b) A ball of mass of mass 30kg is thrown upwards with a velocity of 15m/s. Determine how long it takes for it to stop. Also find how high it rises before stopping.

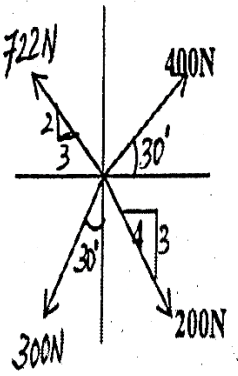


Fig.1

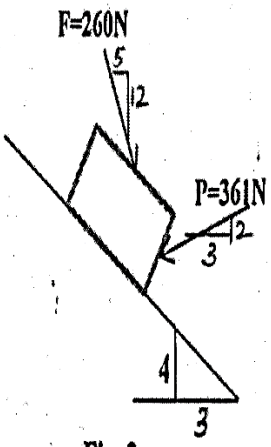


Fig. 2

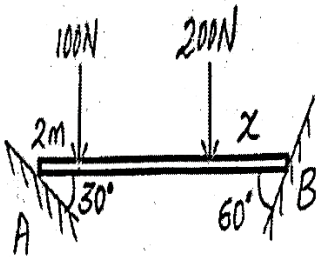


Fig. 3

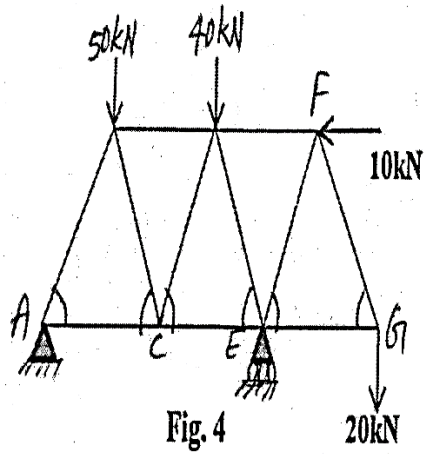


Fig. 4

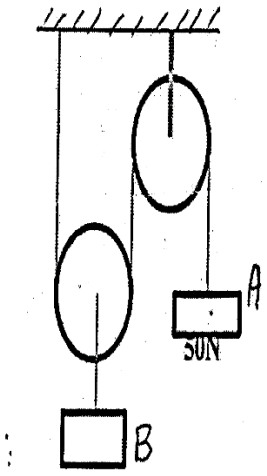


Fig. 5

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Code No.15017/AICTE /BL

# FACULTY OF ENGINEERING

## B.E. II Semester (AICTE)(Backlog) Examination, October 2021

## Subject: Environmental Science

**Time: 2 hours** **Max. Marks: 75**

**Note: Missing data, if any, may be suitably assumed.**

### PART – A

**Answer any five questions.** **(5x3 = 15 Marks)**

1. Explain the scope of environmental education
2. What is food chain and food web?
3. What are the different types of biodiversity?
4. What is acid rain?
5. Write short notes on global warming.
6. Write short notes on environmental issues in India.
7. Write the main objectives of environmental acts.
8. What is meant by the principle “to live and let live”? What is its significance?
9. Mention the merits of solar energy.
10. Write short notes on rain water harvesting.

### PART – B

**Answer any four questions.** **(4x15 = 60 Marks)**

11(a) Discuss varous beliefs of constituting a dam and its environmental consequencies.

(b) How can an individual conserve different natural resources?

12 Explain the types of ecological pyramid in an ecosystem.

13. Explain the causes for loss of biodiversity. And write the various methods to conserve biodiversity.

14. Write critical notes on:
(a) Eutrophication
(b) Biological magnification

15 What is ozone? How does it protect the life on earth? And write the reasons for ozone depletion.

16 (a) Write the salient features of the water(prevention and control of pollution) act 1974.

(b) Explain various methods of solid waste disposal. Write the feasibility of these methods of disposal.

17(a) Explain the concept of sustainable development.

(b) State how social values influence the environmental protection.

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