1ST Semester Examination –2021-22

Subject : Environmental Science
Course : Poly-CSE / *EEE*
Full Marks : 70

Time : 3 Hours.

Instructions to the Candidates:

- Read the question paper very carefully.
- Start writing from 2nd page onwards, <u>Do Not Write On the 1st Page Back Side.</u>
- Question Paper is divided into Three Parts –A, B & C.
- Part-A is containing 12 multiple choice questions.
- Part- B containing SIX questions out of which FOUR questions are to be answered.
- Part C containing FOUR questions out of which TWO questions are to be answered.
- Do not write anything except your Roll No. on the question paper.
- Possession of <u>Mobile Phones</u> or any kind of <u>Written Material</u>, <u>Arguments with the Invigilator</u> or <u>Discussing with Co-Student</u> will comes under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the Papers</u>.

PART A

MULTIPLE CHOICE QUESTIONS   (12x1=12)

1. Greenhouse gases include
   a. Methane   b. Nitrous oxide   c. Ozone   d. All of these

2. Nonrenewable resources include
   a. Coal   b. Oil   c. Natural gases   d. All of these

3. The three R's of integrated waste management area
   a. Recreate, reinvest and realign   b. Reduce, reuse, and recycle
   c. Reabsorb, reduce, and restructure   d. React, reach, and readdress

4. World wetlands day is observed on
   a. February 2   b. June 5   c. April 22   d. March 8

5. World Environmental Day observed on
   a. February 2   b. June 5   c. April 22   d. March 8

6. Development activities on the hydrosphere cause
   a. Air pollution   b. Soil pollution   c. Water pollution   d. Soil erosion

7. Which pollution cause hearing loss in organisms?
   a. Air pollution   b. Noise pollution   c. Water pollution   d. Soil pollution

8. The objective of Environment studies is
   a. Raise consciousness about environment conditions
   b. To teach environmentally appropriate behavior
   c. Create an environmental ethic sensitive society
   d. All of the above

9. Environment is the life support system that includes
   a. Air   b. Water   c. Land   d. All of the above

10. The term 'Environment' has been derived from the French word which means to encircle or surround
    a. Environ   b. Oikos   c. Geo   d. Aqua

11. The word 'Environment' is derived from
    a. Greek   b. French   c. Spanish   d. English

12. Which of these organisms has a diet consisting only of plant matter
    a. Omnivores   b. Carnivores   c. Herbivores   d. Insectivores

PART B

ANSWER ANY FOUROUT OF SIX
                                                                    (4x7=28)

1. What is population explosion? Discuss causes and effect of population growth?
2. Define resources, classification of resources?
3. State the difference between food chain and food web.
4. What is Ecosystem? State its component.
5. Define Biodiversity? What are the major threats to Biodiversity?
6. Explain the concept of Sustainable Development.

PART C

ANSWER ANY TWO OUT OF FOUR
                                                                    (2x15=30)

1. State the scope and importance of environmental studies?
2. Discuss how poverty is related to environment?
3. Write the difference between wildlife sanctuary and national parks. Mention two examples of wildlife sanctuary and national parks.
4. What are the R's policies for sustainable development?

ARKAJAIN University
Jharkhand

JGi

1ST Semester Examination –2021-22

Subject	: Engineering Mechanics	Roll No: ……….
Course	: Polytechnic (CSE|EEE)	Branch: CSE/EEE
Full Marks	: 70	Time : 3 Hours.

Instructions to the Candidates:

- Read the question paper very carefully.
- Candidates are required to give their answers in their own words as far as practicable.
- Question Paper is divided into Three Parts –A, B & C.
- Part-A is containing 12 multiple choice questions.
- Part- B containing SIX questions out of which FOUR questions are to be answered.
- Part C containing FOUR questions out of which TWO questions are to be answered.
- Do not write anything except your Roll No. on the question paper.
- Possession of <u>Mobile Phones</u> or any kind of <u>Written Material</u>, <u>Arguments with the Invigilator</u> or <u>Discussing with Co-Student</u> with comes under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the Papers</u>.

PART A

MULTIPLE CHOICE QUESTIONS
(12x1=12)

1. What is Mechanics?
   a) Branch of science which deals with failure analysis
   b) Branch of science which deals with conditions of rest or motion of bodies
   c) Branch of science which deals with the study of bodies only under rest
   d) Branch of science which deals with the study of bodies only under motion

2. Which of the following is termed as an action of pull or push of a body at rest or motion?
   a) Torque   b) Momentum   c) Work   d) Force

3. What is Kinematics?
   a) Branch of dynamics which deals with the study of bodies under motion without considering forces
   b) Branch of dynamics which deals with the study of bodies at rest
   c) Branch of dynamics which deals with the study of bodies under motion by considering forces
   d) Branch of dynamics which deals with the study of bodies under the motion

4. According to which of the following laws of mechanics a body remains/continue in its state of rest or motion until it is disturbed by an external agent?
   a) Newton's first law of motion
   b) Newton's second law of motion
   c) Newton's third law of motion
   d) Superposition law

5. Forces are called concurrent when their lines of action meet in
   a) One point   b) two points   c) plane   d) perpendicular planes.

6. Which of the following statements describes the resultant of two forces?
   a) Force that maintains the system in equilibrium
   b) Force that has the highest magnitude in the system
   c) Force that has the same effect as the two forces
   d) Force that has the same effect as one force

7. Which of the following is a vector quantity?
   a) Density   b) Mass   c) Volume   d) Acceleration

8. Which of the following doesn't affect frictional force?
   a) Surface roughness   b) Reaction of surface
   c) Area of contact   d) Force tending cause motion

9. At what conditions the dry friction occurs between the surfaces in contact?
   a) When there is no lubricating fluid
   b) When there is no friction fluid
   c) When there is no adhesive fluid
   d) When there is no cohesive fluid

10. The centre of gravity is the ratio of _____ to _____
    a) The product of centroid and weight to the total weight
    b) The addition of centroid and weight to the total weight
    c) The subtraction of centroid and weight to the total weight
    d) The product of centroid and weight to the total mass

11. The point of application where the total weight can be expected to be concentrated if the gravitational force is dispersed across the volume of the body is called _____
    a) The surface of the body
    b) The centroid of the body
    c) Center of gravity of the body
    d) Moment of inertia

12. Which of the following contains moving parts?
    a) Beam   b) Frames   c) Machines   d) Truss

PART B

ANSWER ANY FOUR OUT OF SIX   (4x7=28)

1. Define the terms :
   (a) Statics   (b) Dynamics   (c) Kinetics   (d) Kinematics
2. State Lami's theorem with a sketch.
3. What are fundamental and derived units? Give examples.
4. Define principle of transmissibility.
5. What is machine? Define mechanical advantage of machine.
6. Define :
   (a) Angle of friction   (b) Co-efficient of friction   (c) Fluid friction
7. Distinguish between centroid and center of gravity.

PART C

ANSWER ANY TWO OUT OF FOUR   **(15x2=30)**

1. A spherical ball 80 n is attached to a string and is suspended from the ceiling as shown in figure. Find the tension in the string, if a horizontal force 'F' of magnitude 150 N is applied to the ball as shown in fig. Determine the angle the string makes with the vertical also.
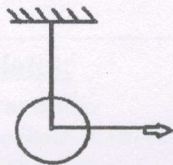
2. The magnitude of two forces is such that when acting at right angles their resultant is $\sqrt{20}$ N and when acting at 60° their resultant is $\sqrt{28}$ N. Find the magnitude of the two forces.

3. What are the winch crabs? Sketch a Single purchase winch crab and set up expression for its velocity ratio.

4. What is a Beam? Describe different types of beams with neat sketch.

ARKA JAIN University
Jharkhand

1st Semester Examination –2021-22

Subject	: Introduction to It System	Roll No	: ....
Course	: Poly CSE & EEE		
Full Marks	: 70	Time	: 3 Hours.

Instructions to the Candidates:

- Read the question paper very carefully.
- Candidates are required to give their answers in their own words as far as practicable.
- Question Paper is divided into Three Parts –A, B & C.
- Part-A is containing 12 multiple choice questions.
- Part- B containing SIX questions out of which FOUR questions are to be answered.
- Part C containing FOUR questions out of which TWO questions are to be answered.
- Do not write anything except your Roll No. on the question paper.
- Possession of <u>Mobile Phones</u> or any kind of <u>Written Material</u>, <u>Arguments with the Invigilator</u> or <u>Discussing with Co-Student</u> will comes under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the Papers</u>.

PART A

MULTIPLE CHOICE QUESTIONS   (12x1=12)

1. UNIVAC is
   - a. Universal Automatic Computer
   - b. Universal Array Computer
   - c. Unique Automatic Computer
   - d. Unvalued Automatic Computer

2. Where are data and programme stored when the processor uses them?
   - a. Main memory
   - b. Secondary memory
   - c. Disk memory
   - d. Programme memory

3. What characteristic of read-only memory (ROM) makes it useful?
   - a. ROM information can be easily updated.
   - b. Data in ROM is non-volatile, that is, it remains there even without electrical power.
   - c. ROM provides very large amounts of inexpensive data storage.
   - d. ROM chips are easily swapped between different brands of computers.

4. What does DMA stand for?
   - a. A. Distinct Memory Access
   - b. Direct Memory Access
   - c. Direct Module Access
   - d. Direct Memory Allocation

5. EEPROM stands for
   - a. Electrically Erasable Programmable Read Only Memory
   - b. Easily Erasable Programmable Read Only Memory
   - c. Electronic Erasable Programmable Read Only Memory
   - d. None of the above

6. Who invented the high-level language "C"?
   - a. Dennis M. Ritchie
   - b. Niklaus Writh
   - c. Seymour Papert
   - d. Donald Kunth

7. BIOS stands for
   a. Basic Input Output system
   b. Binary Input output system
   c. Basic Input Off system
   d. all the above
8. A DVD is an example of a (n)-
   a. hard disk
   b. optical disc
   c. output device
   d. solid-state storage device
9. ....are specific to users' needs
   a. System software
   b. Application software
   c. Assemblers
   d. Compilers
10. .... are set of rules and procedures to control the data transmission over the internet
   a. IP address
   b. Domains
   c. Protocol
   d. Gateway
11. PARAM is an example of:
   a. Super computer
   b. PC
   c. Laptop
   d. PDA
12. Which of the following is/ are operating systems
   a. Windows
   b. Unix
   c. OS/2
   d. All of these

PART B

ANSWER ANY FOUR OUT OF SIX

(4x7=28)

1. What is a web browser? How it is different from Search Engine.
2. What do you mean by Firewall and how they are useful?
3. What do you mean by Shell in Unix? Explain the usage and syntax of following commands:
   (a) Pwd   (b) Mkdir   (c) ls   (d) Grep   (e) Who
4. Explain in details the evolution journey of computers.
5. Explain the following terms
   (a) Lan   (b) Wan?   (c) Ip address   (d) Internet Protocol
   (e) Url   (f) www   (g) Css
6. Write a short note on documentation and presentation in context with MS- word package.

PART C

ANSWER ANY TWO OUT OF FOUR

(2x15=30)

1. Write short notes on the following:
   (a) Disadvantages of Computers.
   (b) Internet Protocol
   (c) Peripheral devices
2. What do you mean by Operating System? Why it is required? Write the name of at least 5 Operating System known to you.
3. What are the pros and cons of internet to the society? Explain.
4. Define Hacking. How it is different from Cracking.

1st Semester Examination –2021-22

Subject : Fundamentals of Electrical and Electronics Engg.

Course : POLY EEE / CSE

Full Marks: 70

Roll No. :

Time : 3 Hours.

Instructions to the Candidates:

- Read the question paper very carefully.
- Start writing from 2nd page onwards, <u>Do Not Write On the 1st Page Back Side</u>
- Question Paper is divided into Three Parts –A, B & C.
- Part-A is containing 12 multiple choice questions.
- Part- B containing SIX questions out of which FOUR questions are to be answered.
- Part C containing FOUR questions out of which TWO questions are to be answered.
- Do not write anything except your Roll No. on the question paper.
- Possession of <u>Mobile Phones</u> or any kind of <u>Written Material</u>, <u>Arguments with the invigilator</u> or <u>Discussing with Co-Student</u> will comes under <u>Unfair Means</u> and will <u>Result</u> in the <u>Cancellation of the Papers</u>.

PART A

MULTIPLE CHOICE QUESTIONS

(12x1=12)

1. Considering the resistances of emitter, collector and base to be R_e, R_c and R_b respectively, which of the following is the correct statements?
   a. $R_e > R_b > R_c$ b. $R_c > R_b > R_e$ c. $R_b > R_c > R_e$ d. $R_b = R_c > R_e$

2. A practical voltage source can also be represented as
   a. Resistance in series with an ideal current source
   b. A resistance in series with an ideal voltage source
   c. A resistance in parallel with an ideal voltage source
   d. None of the mentioned

3. Which of following are known as universal gates?
   a. NAND& NOR   b. AND & OR   c. XOR & OR   d. EX-NOR & XOR

4. Which of the following electrical characteristics is not exhibited by an ideal op-amp?
   a. Infinite voltage gain
   b. Infinite output resistance
   c. Infinite bandwidth
   d. Infinite slew rate

5. The common-mode rejection ratio is
   a. Very low
   b. Equal to the voltage gain
   c. As high as possible
   d. Equal to the common-mode voltage gain

6. What is the e.m.f. induced in a coil of inductance 12H by a current changing at the rate of 4A/s.
   a. – 48 volts
   b. -84 volts
   c. 12 volts
   d. 48 volts

7. The current flowing in a 500 turn coil wound on an iron ring is 4A. The reluctance of the Circuit is 2×106 H. The flux produced is:
   a. 1Wb   b. 1000Wb   c. 1mWb   d. 62.5 μWb

8. The value of an alternating current at any given instant is:
   a. A maximum value
   b. An instantaneous value
   c. A peak value
   d. An r.m.s. Value

9. State which of the following is false. For a sine wave:
   a. The peak factor is 1.414
   b. The average value is 0.637×r.m.s. Value
   c. The r.m.s. Value is 0.707×peak value
   d. The form factor is 1.11

10. If the supply frequency is increased at resonance in a series $R–L–C$ circuit and the values of L, C and R are constant, the circuit will become:
    a. Capacitive   b. Resistive   c. Inductive   d. Resonant

11. The speed of a d.c. motor may be increased by
    a. Increasing the armature current
    b. Decreasing the applied voltage
    c. Decreasing the field current
    d. Increasing the field current

12. Which of the following statements is false?
    a. In an ideal transformer, the volts per turn are constant for a given value of primary voltage
    b. In a single-phase transformer, the hysteresis loss is proportional to frequency
    c. A transformer whose secondary current is greater than the primary current is a step-up transformer
    d. In transformers, eddy current loss is reduced by laminating the core.

PART B

ANSWER ANY FOUR OUT OF SIX
                                                                         (4x7=28)

1. What do you mean by Diode? Discuss few types of diode.
2. Explain the principle of operation of an op amp adder with circuit diagram
3. Design two input NAND and NOR gate. Specify its truth table.
4. The mutual inductance between two coils is 150 mH. Find the magnitude of the e.m.f. induced in one coil when the current in the other is increasing at a rate of 30A/s.
5. Draw an impedance triangle for an $R–L$ circuit. Derive from the triangle an expression of (a) impedance, and (b) phase angle.
6. What is a transformer? Explain the e.m.f. equation for a transformer?

PART C

ANSWER ANY TWO OUT OF FOUR
                                                                        (15x2=30)

1. Describe with circuit diagram Ideal and non- ideal voltage and current source?
2. A coil of 300 turns is wound uniformly on a ring of non-magnetic material. The ring has a mean circumference of 40 cm and a uniform cross-sectional area of 4 cm². If the current in the coil is 5A, calculate (a) the magnetic field strength, (b) the flux density and (c) the total magnetic flux in the ring.
3. Discuss Construction and working principle of DC Machine?
4. Explain the relationships between line and phase currents and line and phase voltages for a star-connected system.