SEMESTER EXAMINATION DECEMBER-2023

Course Name: - B.Tech **Semester:- 1**

Paper Name: - Engineering Physics **Paper Code:- TBS101**

Time - 3 Hrs + 20 minutes per hour extra time for V.I. & examinees with writer. **Max Marks-70**

समय– 3 घण्टे + 20 मिनट प्रति घंटे अतिरिक्त–दृष्टिबाधित एवं साह लेखक परीक्षार्थियों के लिए। अधिकतम अंक–70

Instructions:

- The question paper consists of three sections namely A, B, C. All sections are compulsory.
- Section A- Each question carries **3 mark. All questions are compulsory.**
- Section B- Answer any **5 out of 7** given questions in maximum one hundred fifty (150) words. Each question carries **7 marks.**
- Section C- Answer any **2 out of 3** given questions in maximum three hundred (300) words. Each question carries **10 marks.**

निर्देश:

- प्रश्न पत्र में तीन खण्ड अ, ब, व स हैं। सभी खण्ड अनिवार्य हैं।
- खण्ड–अ में प्रत्येक प्रश्न तीन अंक का है। **सभी प्रश्न अनिवार्य हैं।**
- खण्ड–ब में सात प्रश्नों में से किन्हीं पाँच प्रश्नों के उत्तर अधिकतम 150 शब्दों में दें। प्रत्येक प्रश्न सात अंक का है।
- खण्ड–स में तीन प्रश्नों में से किन्हीं दो प्रश्नों के उत्तर अधिकतम (250-300) शब्दों में दें। प्रत्येक प्रश्न 10 अंक का है।

Section – A (खण्ड–अ)

Objective Questions (वस्तुनिष्ठ प्रश्न)

5x3 =15

1. Answer all the following questions.
निम्नलिखित सभी प्रश्न अनिवार्य हैं।

i) As the speed of a particle approaches the speed of light, the mass of the particle-

a) Increases
b) Decreases
c) Remains the same
d) Approaches Zero

ii) In Young's double slit experiment if the slit separation is doubled. This result in

a) An increase in fringe intensity
b) Decrease in fringe intensity
c) Fringe width will become half
d) Fringe width will become double

iii) What happens to the de Broglie wavelength of an electron if its momentum is doubled?

a) The wavelength decreased by a factor of 4
b) The wavelength increased by a factor of 4
c) The wavelength decreased by a factor of 2
d) The wavelength increased by a factor of 2

iv) "A time-varying electric field produces magnetic field" This phenomenon is called-

a) Gauss's Law
b) Kirchhoff Law
c) Hertz's Law
d) Ampere-Maxwell Law

v) **Which of the following is not a characteristic of LASERS?**

a) Coherent

b) Divergent

c) Monochromatic

d) Intense

Section – B (खण्ड–ब)
Short Answer Questions (लघुउत्तरीय प्रश्न)

2. Answer any five of the following questions in maximum 150 words. **5x7=35**
निम्नलिखित में से किन्हीं पाँच प्रश्नों के उत्तर अधिकतम 150 शब्दों में दें।

i. Discuss experimental evidence that shows time dilation is a real effect

ii. Give any five differences between interference and diffraction.

iii. Give the physical significance of wave function ψ.

iv. In Newton's ring experiment, the diameter of the 20th dark ring is 5.82 mm and the 10th ring is 3.36mm. If the radius of the plano convex lens is 1m, calculate the wavelength of light used.

v. Using the Heisenberg Uncertainty relation show that an electron cannot exist inside the nucleus.

vi. Give the Integral form of Maxwell's equation for EM waves and discuss its physical significance.

vii. Define the Acceptance angle and Numerical aperture and find expressions for them.

Section – C (खण्ड-स)
Descriptive Questions (विवरणात्मक प्रश्न)

3. Answer any two of the following question in maximum 300 words. **2x10=20**
निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर अधिकतम 300 शब्दों में दें।

i) Discuss Michelson Morley Experiment. Find Expression for fringe width in the Michelson Morley Experiment and discuss its consequences.

ii) How Laser light is dissimilar from ordinary light? Give construction and working of Ruby Laser with a neat energy level diagram. Give some applications of Laser Light.

iii) What do you understand by Pointing Vector? State and prove the Poynting theorem.

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SEMESTER EXAMINATION DECEMBER-2023

Course Name: - B.Tech(CSE, ME, CE, EE, ECE) **Semester:- First**

Paper Name: - Engineering Mathematics-I **Paper Code: - TBS-102**

Time - 3 Hrs + 20 minutes per hour extra time for V.I. & examinees with writer. **Max Marks-70**

समय– 3 घण्टे + 20 मिनट प्रति घंटे अतिरिक्त–दृष्टिबाधित एवं साह लेखक परीक्षार्थियों के लिए। अधिकतम अंक–70

Instructions:

- The question paper consists of three sections namely A, B, C. All sections are compulsory.
- Section A- Each question carries **3 mark. All questions are compulsory.**
- Section B- Answer any **5 out of 7** given questions in maximum one hundred fifty (150) words. Each question carries **7 marks**.
- Section C- Answer any **2 out of 3** given questions in maximum three hundred (300) words. Each question carries **10 marks**.

निर्देश:

- प्रश्न पत्र में तीन खण्ड अ, ब, व स हैं। सभी खण्ड अनिवार्य हैं।
- खण्ड–अ में प्रत्येक प्रश्न तीन अंक का है। सभी प्रश्न अनिवार्य हैं।
- खण्ड–ब में सात प्रश्नों में से किन्हीं पाँच प्रश्नों के उत्तर अधिकतम 150 शब्दों में दें। प्रत्येक प्रश्न सात अंक का है।
- खण्ड–स में तीन प्रश्नों में से किन्हीं दो प्रश्नों के उत्तर अधिकतम (250-300) शब्दों में दें। प्रत्येक प्रश्न 10 अंक का है।

Section – A (खण्ड–अ)

Objective Questions(वस्तुनिष्ठ प्रश्न)

1. Answer all the following questions. **5x3 =15**
निम्नलिखित सभी प्रश्न अनिवार्य हैं।

i) The 4^{th} differential co-efficient of the $sin(ax+b)$

a) $y_4 = a^4 sin(ax+b+\frac{n\pi}{2})$

b) $y_4 = a^4 cos(ax+b+\frac{n\pi}{2})$

c) $y_4 = a^4 sin(ax+b+2\pi)$

d) $y_4 = a^4 \cos(ax+b+2\pi)$

ii) Find the rank of matrix $A = \begin{bmatrix} 1 & 2 & 3 \\ 2 & 4 & 7 \\ 3 & 5 & 10 \end{bmatrix}$

a) 1

b) 2

c) 3

d) None

iii) The value of $\Gamma\left(\frac{-1}{2}\right)$ is

a) $-2\sqrt{\pi}$

b) $2\sqrt{\pi}$

c) $-\sqrt{\pi}$

d) $\sqrt{\pi}$

iv) If $\vec{r} = x\hat{i} + y\hat{j} + z\hat{k}$ then grad r is

a) $\frac{\vec{r}}{r}$

b) $\frac{\vec{r}}{r^2}$

c) $-\frac{\vec{r}}{r}$

d) $-\frac{\vec{r}}{r^2}$

v) The degree and order of differential equation $\frac{d^2y}{dx^2} + \left(\frac{dy}{dx}\right)^2 + y = 0$

a) 2, 1

b) 1, 2

c) 1, 3

d) 3, 1

Section – B (खण्ड–ब)

Short Answer Questions (लघुउत्तरीय प्रश्न)

5x7=35

2. Answer any five of the following questions in maximum 150 words.
निम्नलिखित में से किन्हीं पाँच प्रश्नों के उत्तर अधिकतम 150 शब्दों में दें।

i. Find the rank of the matrix $A = \begin{bmatrix} 1 & 1 & 1 \\ a & b & c \\ a^2 & b^2 & c^2 \end{bmatrix}$; a, b, c being all real.

ii. Solve: $(D^2 - 2D + 1)y = xe^x \sin x$.

iii. If $\vec{F}(x,y,z) = xz^3\hat{i} - 2x^2yz\hat{j} + 2yz^4\hat{k}$, find the divergence and curl of $\vec{F}(x,y,z)$.

iv. State the Rolle's theorem and expand $\tan x$ by Maclaurin's Theorem as for as x^5.

v. Show that $\beta(p,q) = \int_0^1 \frac{x^{p-1}+x^{q-1}}{(1+x)^{p+q}} dx$

vi. Find the eigen values and eigen vectors of the matrix $A = \begin{bmatrix} -2 & 2 & -3 \\ 2 & 1 & -6 \\ -1 & -1 & 0 \end{bmatrix}$.

vii. If $f(x) = \frac{x}{1+e^{1/x}}$, $x \neq 0$ and $f(0) = 0$, then show that the function is continuous but not differentiable at $x = 0$.

Section – C (खण्ड–स)

Descriptive Questions (विवरणात्मक प्रश्न)

2x10=20

3. Answer any two of the following question in maximum 300 words.
निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर अधिकतम 300 शब्दों में दें।

i) (a) State and Proof Legendre's duplication formula.

(b) If $y = (\sin^{-1} x)^2$, prove that $(1 - x^2)y_{n+2} - (2n + 1)xy_{n+1} - n^2y_n = 0$.

ii) Verify divergence theorem for $\vec{F} = 4xz\hat{i} - y^2\hat{j} + yz\hat{k}$ taken over the cube bounded by the lines $x = 0, x = 1, y = 0, y = 1, z = 0, z = 1$.

Find the characteristic equation of the symmetric matrix. $A = \begin{bmatrix} 2 & -1 & 1 \\ -1 & 2 & -1 \\ 1 & -1 & 2 \end{bmatrix}$ and verify that is satisfied by A and hence obtain A^{-1}. Express

(a) $A^6 - 6A^5 + 9A^4 - 2A^3 - 12A^2 + 23A - 9I$

(b) $A^5 - 5A^4 + 3A^3 + 6A^2 - 6A + 2I$

as linear polynomial in A.

SEMESTER EXAMINATION, DECEMBER-2023

Course Name: B.Tech. **Semester: 1st**

Paper Name: Professional Communication **Paper Code: THS-101**

Time: 3 Hrs. + 20 Minutes per hour extra for V.I. and examinees with writer **Max. Marks: 70**

समय - 3 घण्टे + 20 मिनट प्रति घण्टे अतिरिक्त दृष्टिबाधित एवं सहलेखक परीक्षार्थियों के लिए। अधिकतम अंक: 70

Instructions:

(i) The question paper consists of three Sections namely A, B and C. All Sections are compulsory.

(ii) Section-A – Each question carries 3 marks. All questions are compulsory.

(iii) Section-B – Answer any 5 out of 7 given questions in maximum one hundred fifty (150) words. Each question carries 07 marks.

(iv) Section-C – Answer any 2 out of 3 given questions in maximum three hundred (300) words. Each question carries 10 marks.

निर्देश:

(i) प्रश्न-पत्र में तीन खण्ड अ, ब व स हैं। सभी खण्ड अनिवार्य हैं।

(ii) खण्ड-अ में प्रत्येक प्रश्न 03 अंकों का है। सभी प्रश्न अनिवार्य हैं।

(iii) खण्ड-ब में 07 प्रश्नों में से किन्हीं 05 प्रश्नों के उत्तर अधिकतम 150 शब्दों में दीजिये। प्रत्येक प्रश्न 07 अंकों का है।

(iv) खण्ड-स में 03 प्रश्नों में से किन्हीं 02 प्रश्नों के उत्तर अधिकतम 300 शब्दों में दीजिये। प्रत्येक प्रश्न 10 अंकों का है।

Section-A (खण्ड-अ)

Objective Questions (वस्तुनिष्ठ प्रश्न)

(3×5=15)

1. Answer all the following questions:

निम्नलिखित सभी प्रश्न अनिवार्य हैं:

(i) Find the synonym of the following word: futile

(A) unreal

(B) practical

(C) fruitfull

(D) useless

(ii) Select the correct prefix for the word, measurable:

(A) im

(B) in

(C) un

(D) pre

(iii) Upward communication flows from:

(A) Top to bottom

(B) Bottom to top

(C) Both ways

(D) Horizontally

(iv) One form of informal communication is:

(A) Grapevine

(B) Professional

(C) Both

(D) None

(v) ..... is an active process, all attention is on the speaker.

(A) Tact

(B) Empathy

(C) Listening

(D) Negotiation

Section-B (खण्ड-ब)

Short Answer Questions (लघुउत्तरीय प्रश्न)

2. Answer any five of the following questions in maximum 150 words: (7×5=35)

निम्नलिखित में से किन्हीं पाँच प्रश्नों के उत्तर अधिकतम 150 शब्दों में दीजिये:

(i) What is the difference between Resume and CV? How it can affect the process of interview?

(ii) What is Kinetics? Elaborate.

(iii) Define:

(a) Organizational Communication

(b) Interpersonal Communication

(iv) What is sentence? Explain its types also.

(v) What is a Sales letter? Explain with an example.

(vi) What are different methods for writing a paragraph?

(vii) What is the importance of prepositions and articles in the use of language? Explain.

Section-C (खण्ड-स)

Descriptive Questions (विवरणात्मक प्रश्न)

3. Answer any two of the following questions in maximum 300 words: (10×2=20)

निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर अधिकतम 300 शब्दों में दीजिये:

(i) Read the following passage and answer the questions:

The modern workplace is a diverse and dynamic environment that thrives on the contribution of individuals from various backgrounds. However, one aspect of diversity that has gained increasing attention is disability. Disabilities encompass a wide range of conditions, both visible and invisible, that can impact an individual's mobility, sensory perception, cognitive functions, and more. In recent years, there has been a growing awareness of the need to create inclusive and accommodating workplaces that embrace employees with disabilities.

Creating an inclusive workplace involves more than just meeting legal requirements; it requires a shift in mindset and organizational culture. Employers are increasingly recognizing that individuals with disabilities bring unique perspectives, talents, and strengths to the table. These individuals often demonstrate remarkable resilience, adaptability, and problem-solving skills, qualities that can benefit teams and companies as a whole. Reasonable accommodations play a pivotal role in enabling employees with disabilities to perform at their best. These accommodations can range from physical modifications to the workspace, such as ramps or accessible technology, to flexible work arrangements that are emphathetic to an employee's needs. By providing these accommodations, employers not only empower individuals with disabilities to contribute effectively but also demonstrate a commitment to fostering an environment of equality and respect.

Howerver, challenges remain, Stigma and misconceptions surrounding disabilities can persist, leading to biases and exclusion. Awareness campaigns and training initiatives can help dismantle these barriers and promote a more empathetic and informed work environment. Additionally, ensuring that hiring process and career advancement opportunities are inclusive can furhter encourage the integration of individuals with disabilities into the workforce.

Ultimately, an inclusive workplace benefits everyone. It promotes a sense of belonging and community among employees, leading to higher job satisfaction and retention rates. Moreover, when companies value diversity in all its forms, they often experience improved creativity, innovation, and problem-solving, as differnet perspectives and experiences converge to drive progress.

In conclusion, disability in the workplace is a multifaceted topic that demands attention and action. By fostering an inclusive culture, providing reasonable accommodations, and challenging stereotypes, employers can create environments where individuals with disabilities can thrive and contribute meaningfully. Embracing disability in the workplace is not just a legal or moral obligation; it is an investment in a richer, more diverse, and ultimately more successful working environment.

Answer following questions:

(a) What is the significance of creating inclusive workplace environment?

(b) How can reasonable accommodations positively impact employees with disabilities?

(c) What role do awareness campaigns and training initiatives play in addressing challenges related to disabilities in the workplace?

(d) How does an inclusive workplace benefit both employee and companies?

(e) What are some potential challenges individuals with disabilities might face in a workplace?

(ii) You and your friends have decide to visit Himachal in the last week of December this year. Write a dialogue in around 200 words between you and a Travel Agent enquiring for the required arrangements for this trip.

(iii) What is a Communication, its elements and process? Elaborate.

●●●●●

SEMESTER EXAMINATION, DECEMBER -2023

Course Name: -B. Tech.(E.C.E.) **Semester: -1st**

Paper Name: -Fundamental of Electronics Engineering Paper Code: -TES-105

Time - 3 Hrs + 20 minutes per hour extra time for V.I. & examinees with writer. Max Marks-70

Instructions:

- The question paper consists of three sections namely A, B, C. All sections are compulsory.
- Section A- Each question carries 03 marks. All questions are compulsory.
- Section B- Answer any **5 out of 7** given questions in maximum hundred **(150) words**. Each question carries **7 marks**.
- Section C- Answer any **2 out of 3** given questions in maximum five hundred **(300) words**. Each question carries **10 marks**.

Section – A

Objective Questions

3×5=15

1. Answer all the following questions.

1. Which electronic component store electric charge?
   a) Resistor b) Diode
   c) Inductor d) Capacitor
2. What is the fundamental unit of charge?
   a) Coulomb b) Ampere
   c) Volt d) Farad
3. Which component allows current to flow in one direction only?
   a) Resistor b) Capacitor
   c) Diode d) Transistor
4. What is the purpose of a transistor in an electronic circuit?
   a) To amplify or switch electronic signals b) To store electric charge
   c) To control resistance d) To regulate voltage
5. What are the three terminals of a bipolar junction transistor?
   a) Gate, Drain, Source b) Base, Collector, Emitter
   c) Drain, Gate, Source d) Gate, Emitter, Collector

Section – B

Short Answer Questions

2. Answer any five of the following questions in maximum 150 words. **5×7=35**

1. Define electronics, list applications and advantages. Categorize its components and differentiate the analog and digital electronics?
2. Define gate and its construction. Highlight advantages of digital electronics. Discuss basic, universal, and special gates with truth table with its representation.
3. Explain semiconductor and its advantages. Categorize semiconductors by conductivity and energy band gap? Write 2-suitable semiconductor device name based on direct band gap semiconductor.
4. Convert the following decimal number to binary, octal and hexadecimal.
   (a) 10 (b) 100 (c) 1000
5. What is radix or base? Calculate the 1's and 2's complement of the following
   (a) 010 (b) 00100 (c) 111001 (d) 10010
6. Perform step by step multiplication of
   (a) $(1001)_2$ by $(1000)_2$
   (b) $(10001)_2$ by $(100)_2$

C- Answ
n carries 10 marks.

सभी प्रश्न अनिवार्य हैं।

Perform step by step division of

(a) $(10001)_2$ by $(100)_2$

(b) $11111)_2$ by $(100)_2$

7. Write down mechanism of LED, photo diode with VI-Characteristics and also draw its symbolic representation? And explain which type of semiconductor use to design a LED and photo diode.

Section – C
Descriptive Questions

2×10=20

3. Answer any two of the following question in maximum 300 words.

1. Describe the pn junction mechanism, illustrate and elucidate its Voltage-current characteristics, applications, and diode equations.

2. Elaborate on the basic gate utilizing symbol representation, truth table and its representation using with diode or transistor.

3. Describe the BJT mechanism, applications, and explain its different biasing configurations.

END SEMESTER EXAMINATION DECEMBER-2023

Course Name: - B.Tech (ME) **Semester: - 1st**

Paper Name: - Engineering Mechanics **Paper Code: - TES-103**

Time - 3 Hrs + 20 minutes per hour extra time for V.I. & examinees with writer. **Max Marks-70**

समय– 3 घण्टे + 20 मिनट प्रति घंटे अतिरिक्त–दृष्टिबाधित एवं सह लेखक परीक्षार्थियों के लिए। अधिकतम अंक–70

Instructions:

- The question paper consists of three sections namely A, B, C. All sections are compulsory.
- Section A- Each question carries 3 mark. All questions are compulsory.
- Section B- Answer any 5 out of 6 given questions in maximum hundred (150) words. Each question carries 7 marks.
- Section C- Answer any 2 out of 3 given questions in maximum five hundred (500) words. Each question carries 10 marks.

निर्देश:

- प्रश्न पत्र में तीन खण्ड अ, ब, व स हैं। सभी खण्ड अनिवार्य हैं।
- खण्ड–अ में प्रत्येक प्रश्न तीन अंक का है। सभी प्रश्न अनिवार्य हैं।
- खण्ड–ब में छः प्रश्नों में से किन्हीं पाँच प्रश्नों के उत्तर अधिकतम 150 शब्दों में दें। प्रत्येक प्रश्न सात अंक का है।
- खण्ड–स में तीन प्रश्नों में से किन्हीं दो प्रश्नों के उत्तर अधिकतम (300) शब्दों में दें। प्रत्येक प्रश्न 10 अंक का है।

Section – A (खण्ड–अ)

Objective Questions (वस्तुनिष्ठ प्रश्न)

5×3 =15

1. Answer all the following questions.
निम्नलिखित सभी प्रश्न अनिवार्य हैं।

i) The moment of inertia of a triangle of base width b and height h about is base is
   a) $bh^3/36$
   b) $bh^3/12$
   c) $bh^3/6$
   d) $bh^3/3$

ii) A ball, weighing W is tied to a smooth wall with a single wire. If the string makes angle θ with the wall , reaction from the wall is
   a) W tanθ
   b) W sinθ
   c) W cosθ
   d) W cotθ

iii) If a body is in equilibrium under the action of three forces F1, F2 and F3 and with angles 100°,120° and 140° between F_1 and F_2, F_2 and F_3 , F_3 and F_1 respectively , then according to Lami's theorem
   a) $F_1/\sin 100° = F_2/\sin 120° = F_3/\sin 140°$
   b) $F_1/\sin 120° = F_2/\sin 140° = F_3/\sin 100°$
   c) $F_1/\cos 100° = F_2/\cos 120° = F_3/\cos 140°$
   d) $F_1/\cos 120° = F_2/\cos 140° = F_3/\cos 100°$

iv) If F is limiting friction , N is normal reaction and R is resultant of F and N , the angle of limiting friction is
   a) Angle between F and N
   b) Angle between F and R
   c) Angle between N and R
   d) None of the above

v) In a simply supported beam of 5m span a 30 KN-m moment is acting at a distance 2 m from support A. In this beam reaction at support A is

a) 15 KN
b) 6 KN
c) 12 KN
d) 75 KN

Section – B (खण्ड–ब)
Short Answer Questions (लघुउत्तरीय प्रश्न)

2. Answer any five of the following questions in maximum 150 words. 5×7=35
निम्नलिखित में से किन्हीं पाँच प्रश्नों के उत्तर अधिकतम 150 शब्दों में दें।

i. Find the reactions developed at supports A and B of the loaded beam shown in Fig.1.

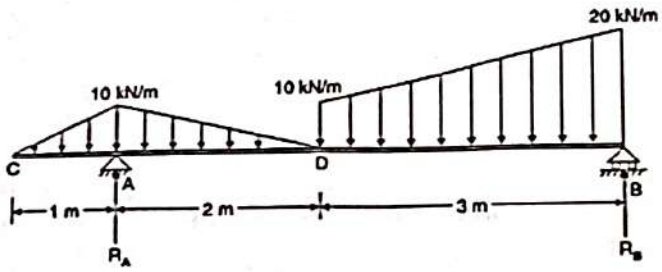

Fig.1

ii. Find the forces in all the members of the truss shown in Fig.2.

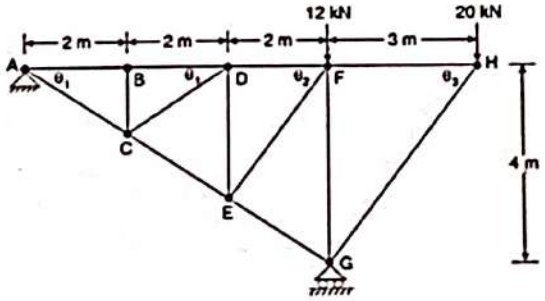

Fig.2

iii. Determine the resultant magnitude and angle of the three forces acting on a hook as shown in Fig.3

2 m from

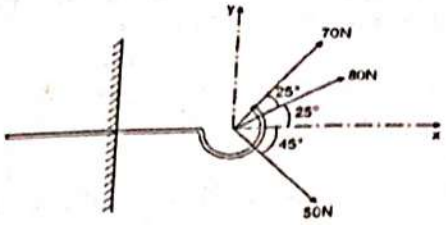

Fig.3

iv. Differentiate between center of gravity and centroid. Under what condition these will coincide? State triangle law and polygon law of forces.

v. Block A weighing 1000 N rests over block B which weighs 2000 N as shown in Fig.4. Block A is tied to wall with a horizontal string. If the coefficient of friction between blocks A and B is 0.25 and between B and floor is 1/3, what should be the value of P to move the block (B), if

(a) P is horizontal. (b) P acts at 30° upwards to horizontal

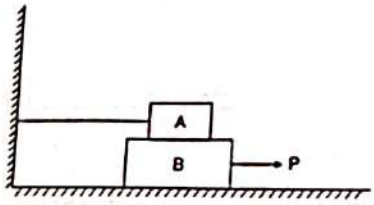

Fig.4

vi. A ladder weighing 100 N is to be kept in the position shown in Fig.5, resting on a smooth floor and leaning on a smooth wall. Determine the horizontal force required at floor level to prevent it from slipping when a man weighing 700 N is at 2m above floor level.

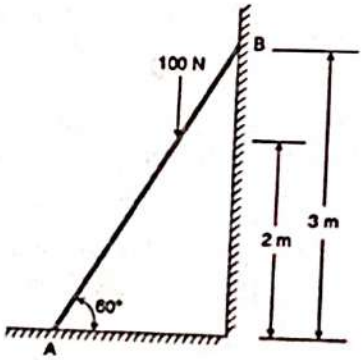

Fig.5

Section - C (खण्ड–स)

Descriptive Questions (विवरणात्मक प्रश्न)

3. **Answer any two of the following question in maximum 300 words.**
निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर अधिकतम 300 शब्दों में दें।

i) (a) Explain the behaviour of stress-strain curve for the mild steel specimen by describing various points and its practical importance with neat sketch.

(b) Determine the forces in the members FH, HG and GI in the truss shown in Fig.6. Each load is 10 and all triangles are equilaterals with sides equal to 4 m.

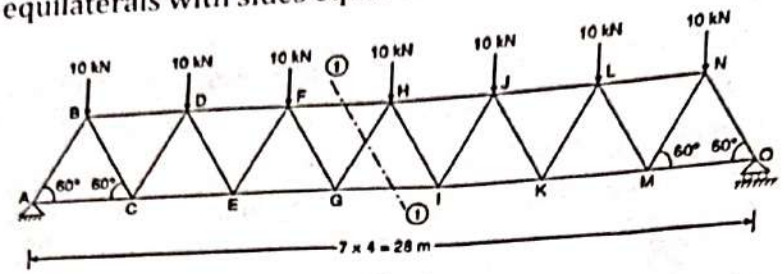

Fig.6

ii) (a) Find the second moment of the shaded portion shown in Fig.7 about its centroidal axis.

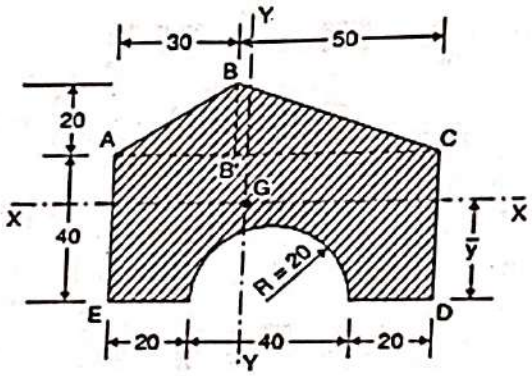

Fig.7

(b) Explain the type of loads supports and beams with neat sketch. State and prove Lami's theorem.

iii) (a) A circular rod of diameter 16 mm and 500 mm long is subjected to a tensile force 40 KN. The modulus o elasticity for steel may be taken as 200 KN/mm^2. Find stress, strain and elongation of the bar due to applied load.

(b) The bar shown in Fig.8 is tested in universal testing machine. It is observed that at a load of 40 KN and the total extension of the bar is 0.280 mm. Determine the Young's modulus of the material.

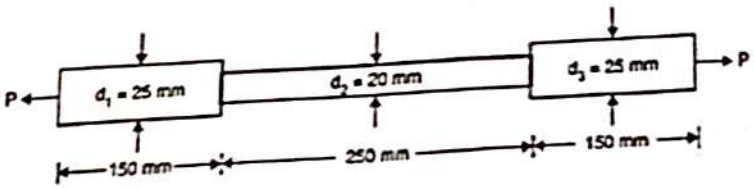

Fig.8

(c) Describe the angle of friction, angle of repose and cone of friction with neat sketch.

SEMESTER EXAMINATION DECEMBER-2023

Course Name: - B.Tech **Semester:- 1st**

Paper Name: - Environmental Science **Paper Code:- TMC-101**

Time - 3 Hrs + 20 minutes per hour extra time for V.I. & examinees with writer. **Max Marks-70**

समय–3 घण्टे+ 20 मिनट प्रति घंटे अतिरिक्त–दृष्टिबाधित एवं सह लेखक परीक्षार्थियों के लिए। अधिकतम अंक–70

Instructions:

- The question paper consists of three sections namely A, B, C. All sections are compulsory.
- Section A- Each question carries **3 mark. All questions are compulsory.**
- Section B- Answer any **5 out of 7** given questions in maximum one hundred fifty (150) words. Each question carries **7 marks.**
- SectionC- Answer any **2 out of 3** given questions in maximum three hundred (300) words. Each question carries **10 marks.**

निर्देश:

- प्रश्न पत्र मे तीन खण्ड अ, ब, व स हैं। सभी खण्ड अनिवार्य हैं।
- खण्ड–अ मे प्रत्येक प्रश्न तीन अंक का है। सभी प्रश्न अनिवार्य हैं।
- खण्ड–ब में सात प्रश्नों में से किन्हीं पाँच प्रश्नों के उत्तर अधिकतम 150 शब्दों में दें। प्रत्येक प्रश्न सात अंक का है।
- खण्ड–स में तीन प्रश्नों में से किन्हीं दो प्रश्नों के उत्तर अधिकतम (250-300) शब्दों में दें। प्रत्येक प्रश्न 10 अंक का है।

Section – A (खण्ड–अ)

Objective Questions(वस्तुनिष्ठप्रश्न)

5x3 =15

1. Answer allthe following questions.
निम्नलिखित सभी प्रश्न अनिवार्य हैं।

i) Sustainable development means
   a) meeting present needs without compromising on future needs
   b) progress of human beings
   c) balance between human needs and the ability of earth to provide the resources
   d) all of the above

ii) _____ is an example of an ex-situ conservation.
   a) Sacred groves
   b) Wildlife sanctuary
   c) Seed bank
   d) National park

iii) Which one of the following is a sedimentary type of biogeochemical cycle?
   a) Oxygen and nitrogen
   b) Phosphorus and sulphur
   c) Carbon and nitrogen
   d) None of the above

iv) Which one of the following is the cause of acid rain?
   a) Water pollution
   b) Noise pollution
   c) Land pollution
   d) Air pollution

v) Which of the following is not a solution for global warming?
   a) Using compact fluorescent light (CFL) bulbs
   b) Planting more trees
   c) Reducing fossil fuel consumption
   d) Deforestation

Section – B (खण्ड–ब)
Short Answer Questions (लघुउत्तरीय प्रश्न)

2. Answer any five of the following questions in maximum150 words. 5x7=35
निम्नलिखित में से किन्हीं पाँच प्रश्नों के उत्तर अधिकतम 150 शब्दों में दें।

i. What is Green Chemistry? Determine the different goals of green chemistry.

ii. Explain Ecosystem, its basic concept and its types.

iii. Explain the different features and Schedule of Wildlife Protection Act, 1972.

iv. Differentiate between the In-situ and Ex-situ methods of biodiversity conservation?

v. What are the different types of Natural resources? Discuss its importance.

vi. What is Ozone layer depletion? Explain the causes and effect of its depletion on human and Environment.

vii. Discuss in brief about 'Chipko Movement'.

Section – C (खण्ड–स)
Descriptive Questions (विवरणात्मक प्रश्न)

3. Answer any two of the following question in maximum 300 words. 2x10=20
निम्नलिखित में से किन्हीं दो प्रश्नों के उत्तर अधिकतम 300 शब्दों में दें।

i) Discuss the causes, effects and control measure to reduce water pollution.

ii) Write a note on 'Hotspots of Biodiversity'.

iii) Explain the procedure of Green house effect and Acid rain.

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