INDIAN INSTITUTION OF INDUSTRIAL ENGINEERING

Internal Assignment for IIIE Students (Old Syllabus)

February- 2027 Examination

The Internal Assignment for Preliminary, Section-A & Section-B will be required to be submitted by those students appearing for February 2027 exam. All eligible students are hereby directed to submit the completed Internal Assignment for the subjects they are appearing for February 2027 exam on or before **10th December 2026**. Assignments are an important aspect of examinations. It is obvious that if you get good marks in assignment your overall percentage shall improve. The weightage for the Internal Assignment will be 20% of the total marks in the respective subject. Internal Assignments are attached below

INSTRUCTIONS FOR INTERNAL ASSIGNMENT

Submission of Assignment is Compulsory. If Assignment not submitted, such students shall be given ZERO (0) marks.

1. **Students have to pass individually total 40 marks in each subject, written exam 80% and in Assignment 20% weightage.**
2. **Assignment is compulsory only for the subject's students appearing for Exam.**
3. **It will be the responsibility of student to appear or not to appear for the written paper if he / She has NOT SUBMITTED ASSIGNMENT in time as per instructions. IIIE shall not be responsible for the consequences.**
4. **Please write carefully your Name, Student membership number, Subject name on each Subject Assignment. Please take printout of first page and fill all details before tape binding the assignment pages.**
5. **It is advised that assignment should be written on the format page given below with this. All assignments to be separately submitted for each subject in a format pages. Write down on both sides of the papers.**
6. **The fees for Internal Assignment will be Rs.200/- per subject. This is to be paid through Demand Draft or Online only (Cheque payment will not be accepted) DD drawn in favour of Indian Institution of Industrial Engineering, payable at Mumbai and sent along with Assignment. Write your name and membership number on the back side of the Demand Draft, Online payment / transaction details should be attached with assignment. Bank details are given below for Online payment.**

   Name of Account: Indian Institution of Industrial Engineering
   Current Bank A/c No.: 00 5320 100000 720
   Bank Name : Bank of India
   Branch: Belapur, Navi Mumbai 400 614
   IFSC : BKID0000053

7. **Solve the questions as per instructions (do not leave any questions or sub questions). Detailed answers are expected. Keep sufficient gap between answers of different questions.**

8. **The paper should be written neat and clean. Leave left margin, top margin and bottom margin. Write up should be legible. Solve all questions sequence wise (from 1 to 7 in ascending order).**
9. **The expected length of the answer shall depend upon the nature of the question.**
10. **Answers shall include the definition, Diagrams, Tables, examples, etc. depending on the nature of the question. Do not waste your time in decorating assignments.**
11. **IE005: Engineering Drawing & Computer Graphics assignment, student may use drawing sheets.**
12. **Content that has been directly copied from each other or the Internet will NOT be accepted.**
13. **Assignments that have been copied and shared among student(s) will be automatically rejected and such students are liable for disqualification.**
14. **Ensure that your answers are according to the marks allocated. Students are advised to check their Assignments thoroughly before submitting the same.**
15. **Late submissions up to 15th December 2026will be accepted with Rs. 200/- per subject as late fees.**
16. **Beyond 15th December 2026 Internal Assignment will not be accepted.**
17. **It is necessary to keep Xerox Copy of all documents (Assignments and DD) with you for your reference and safety.**
18. **The following Front Cover & second page is Compulsory should be Attached with Each Internal Assignment.**
19. Write page number from first page of Assignment like Page No 1/20, 2/20 etc & assignment to be written on printed format A4 size page only and bind properly.
20. All students are hereby informed that **Internal Assignments must be submitted in tape binding** only. Ensure that the binding is **neat and secure**. Submissions in spiral, stapler, or loose format will not be accepted. Assignments not submitted in tape binding will be considered incomplete.



Sample of Tape Binding

If students still have any doubt, they may call or email their queries to Controller of Examinations, IIIE.

Sd/-
Controller of Examinations

NOTE: DOWNLOAD THE BELOW PAGE FOR WRITING ASSINGMENTS.

STUDENT ASSIGNMENT FOR

FEBRUARY-2027 EXAMINATION

(OLD SYLLABUS)

Student Name : _____

Membership No. : _____

Section : _____

Subject Code & Name : _____

Assignment Payment Details UTR No. / DD No. _____

Bank Name : _____

Payment Date : _____

Signature of the student with date _____

Student Membership Number-					
QUESTION NO	(a)	(b)	(c)	(d)	TOTAL MARKS (To be filled by Examiner)
CANDIDATE NEED TO TICK IF ATTEMPTED					
1					
2					
3					
4					
5					
6					
7					
TOTAL MARKS: -					

SIGNATURE OF THE EXAMAINER WITH DATE

Student Membership No: **Subject Name :**

Section: Preliminary/ Sec- A / Sec- B. (February-2027 Exam) **Subject Code:**

TAPE BINDING

TAPE BINDING

Student Membership No: **Subject Name :**

Section: Preliminary/ Sec- A / Sec- B. (February-2027 Exam) **Subject Code:**

Mandatory Format for who have done online payment for Internal Assignments February- 2027 Examination.

- Student Name: _____
- Student Membership No. : S-_____
- Section: _____
- Online Transaction Date: _____
- Amount Transferred (Rs.)_____
- Transaction ID/UTR/UPI/IMPS or Neft No._____
- Total Nos. of Assignments: _____

Important Notice: Transaction details hard copy should be submitted along with Assignment (Don't paste hard copy on Assignment) and soft copy of the same (transaction details) to be sent through e-mail to iiiereceiptdept@gmail.com is compulsory.

Date: -_____ Signature of Student

N.B.: This requirement of account section so please submit properly.

INDIAN INSTITUTION OF INDUSTRIAL ENGINEERING
GRADUATESHIP EXAMINATION
Internal Assignment for February 2027 (Old Syllabus)
Preliminary
IE001: BUSINESS COMMUNICATION

Total Marks: 140

Instructions: All question are compulsory

Q1		Describe a scene in "1000 words" after visit of President (Maintenance) of industry to your "department". The essay should include the recollecting the visit information, layout of department.	(20)
Q2		Write a letter, as the director of human resources for Tata Power, you have been authorized to hire up to "5 engineering management trainees" on permanent basis. Decide the payment terms, work responsibilities. Write a letter to Placement officer of college mentioning terms of recruitment i.e. bond, pay-scale, leaves etc.	(20)
Q3		Explain the Procedure of report writing like problem definition, collecting factors involved, organizing information, conclusion etc.	(20)
Q4		Write 2000 words report (2 page) on "The supervisor of Engineering Department prepares a report evaluating the performance of a turner"	(20)
Q5	(a)	Discuss various types of reports.	(10)
	(b)	Write 1 page progress report to Factory manager, a head of your purchase department, showing decreasing purchase trend.	(10)
Q6		Discuss following key elements of precis writing. i.Length ii. Remark iii. Body iv. Outcome	(20)
Q7		Define Precis. Why precis writing is important? Discuss the process of converting report into precis.	(20)

INDIAN INSTITUTION OF INDUSTRIAL ENGINEERING
GRADUATESHIP EXAMINATION
Internal Assignment for February 2027 (Old Syllabus)
Preliminary
IE 002 ELEMENTS OF INDUSTRIAL ENGINEERING

Total Marks: 140

Instructions: All question are compulsory

Q1	**a)**	Explain various types of goals to be set and desire to achieve for a business	(10)
	b)	Elaborate the statement "Resources optimization is the key to run a successful business".	(10)
Q2	**a)**	Explain different functions of industrial engineering	(10)
	b)	Define productivity. Describe various factors which have major impact on productivity improvement.	(10)
Q3	**a)**	Explain Maslow's hierarchy theory	(10)
	b)	Describe various types of production	(10)
Q4	**a)**	Define work study, method study and time study. State the objectives of work study.	(10)
	b)	Define Layout? Compare various types of Layout?	(10)
Q5	**a)**	Define work sampling. Explain the procedure of work sampling to calculate standard time.	(10)
	b)	Explain principles of motion economy related work place design	(10)
Q6	**a)**	Explain the concept of Design for Manufacturability and Assembly with the help of suitable case study?	(10)
	b)	Describe the various principles of ergonomics.	(10)
Q.7	**a)**	Explain supply chain of any automobile industry.	(10)
	b)	Explain the term: i) Flexible manufacturing system ii) Reengineering	(10)

INDIAN INSTITUTION OF INDUSTRIAL ENGINEERING
GRADUATESHIP EXAMINATION
Internal Assignment for February 2027 (Old Syllabus)
Preliminary
IE003 MATHEMATICS FOR ENGINEERS

Total Marks: 140

Instructions: All question are compulsory

Q1 a) Find the angle between the radius vector and the tangent to the curve
i) $r=a(1-\cos\theta)$ ii) $r^m=a^m(\cos m\theta+\sin m\theta)$ (10)

b) Find the orthogonal trajectories of the family of curves $\frac{x^2}{a^2}+\frac{y^2}{b^2+\lambda}=1$, where λ is a parameter. (10)

Q2 a) Find the radius of curvature for the curve $y^2=\frac{4a^2(2a-x)}{x}$ where the curve meets the x-axis. (10)

b) If $x=u(1-v), y=uv$ find $J=\frac{\partial(x,y)}{\partial(u,v)}$ and J′=$\frac{\partial(u,y)}{\partial(x,y)}$ hence show that JJ′ = 1. (10)

Q3 a) Show that is $z(x,y)=x^3+y^3-3xy+1$ minimum at (1,1). (10)

b) Find the maximum and minimum value of $x^3+3xy^2-15x^2-15y^2+72x$. (10)

Q4 a) Evaluate the integral $\int_{-c}^{c}\int_{-b}^{b}\int_{-a}^{a}(x^2+y^2+z^2)dzdydx$ (10)

b) Evaluate $\int\int_R xy(x+y)dydx$ taken over the region enclosed by the curve $y=x$ & $y=x^2$ (10)

Q5 a) Find the Laplace transform of i) $f(t)=t^2\sin at$ ii) $f(t)=e^{-2t}(2\cos 5t-\sin 5t)$. (10)

b) Find the inverse Laplace transform of i) $\frac{4s+5}{(s+1)^2(s+2)}$ ii) $\frac{1}{s(s+1)(s+2)(s+3)}$ (10)

Q6 a) Find the rank of the matrix the by reducing it to echelon form

i) $\begin{bmatrix} 4 & 0 & 2 & 1 \\ 2 & 1 & 3 & 4 \\ 2 & 3 & 4 & 7 \\ 2 & 3 & 1 & 4 \end{bmatrix}$, ii) $\begin{bmatrix} 4 & 0 & 2 & 1 \\ 2 & 1 & 3 & 4 \\ 2 & 3 & 4 & 7 \\ 2 & 3 & 1 & 4 \end{bmatrix}$. (10)

b) Find the Eigen values and the corresponding Eigen vectors of the matrix

$$\begin{bmatrix} -2 & 2 & -3 \\ 2 & 1 & -6 \\ -1 & -2 & 0 \end{bmatrix}.$$ (10)

Q7 a) Solve by using Laplace transform $y''' + 2y'' - y' - 2y = 0$ given that

$y(0) = y'(0) = 0,\ y''(0) = 6$. (10)

b) Express the function $f(t) = \begin{cases} \cos t, & 0 < t \le \pi \\ 1, & \pi < t \le 2\pi \\ \sin t & t > 2\pi \end{cases}$ in terms of Heaviside unit step function and hence find its Laplace transform. (10)

INDIAN INSTITUTION OF INDUSTRIAL ENGINEERING
GRADUATESHIP EXAMINATION
Internal Assignment for February 2027 (Old Syllabus)
Preliminary
IE004 COMPUTER AND INFORMATION TECHNOLOGY
Total Marks: 140

Instructions: All question are compulsory

Q1 a) Discuss the features of different mass data storage devices like optical, magnetic and solid-state. (10)

b) Explain in brief the concept of Object-Oriented Programming (OOP). State the notable features of the Object-Oriented Programming Languages. (10)

Q2 a) Explain the concept of the World Wide Web (WWW). Outline the flow of operations performed when a user requests an internet URL. (10)

b) Define and explain generic database management system (DBMS). How it is differentiated from the relational database management system (RDBMS)? (10)

Q3 a) What is Desktop Publishing (DTP)? Compare and contrast its design capabilities with standard word processing applications in business document management. (10)

b) Explain various functionalities of Transaction Processing Systems (TPS). How does a TPS support day-to-day business operations? (10)

Q4 a) Describe the architecture of a Local Area Network (LAN). Compare the bus, star and mesh network topologies in terms of fault tolerance and scalability. (10)

b) Justify that the concepts like modularity, reuse and structural programming techniques improve software reliability. (10)

Q5 a) Explain the role of an Operating System in file management system. How does it handle access controls, directories and file allocations on secondary storage devices? (10)

b) Define E-governance. Discuss its various models (G2C, G2B, G2G) and explain how IT-enabled governance applications improve citizen services. (10)

Q6 a) State the need of System Analysis and Design. Compare the traditional Waterfall development model with modern Agile methodologies for business application deployment (10)

b) Discuss the applications of voice-over-IP (VoIP) and video conferencing tools for enterprise -level group communications. (10)

Q7 a) Differentiate between a Command Line Interface (CLI) and a Graphical User. Interface (GUI) with their relative advantages and drawbacks. (10)

b) Classify modern computer systems based on processing power and configuration. (10)

INDIAN INSTITUTION OF INDUSTRIAL ENGINEERING
GRADUATESHIP EXAMINATION
Internal Assignment for February 2027 (Old Syllabus)
Preliminary
IE005 ENGINEERING DRAWING AND COMPUTER GRAPHICS

Total Marks: 140

Instructions: All question are compulsory

Q.1 a) Construct a parabola with base 110 mm and axis height 75 mm by the tangent method. (10)

b) A line AB, 90 mm long, is situated in the first quadrant. Its end A is 25 mm above the H.P. and 30 mm in front of the V.P. The distance between the end projectors is 65 mm. End B is Y mm in front of the V.P. and 25 mm above the H.P. Draw its projections and determine: The inclination of the line with the V.P. and The value of Y. (10)

Q.2 Figure 1 shows an object. Draw the following views according to first-angle convention:
a) Front View b) Right-Hand Side View c) Top View (20)

Q.3 A square prism with side of base 40 mm and axis length 60 mm has one of its base sides in the V.P., which makes an angle of 45° with the H.P., and the axis is inclined at an angle of 30° with the V.P. Draw its projections. (20)

Q.4 Draw full-size three views of the universal coupling with all parts assembled together as shown in Figure No. 2. (20)

Q.5 Draw in two views, a neat sketch of a 250 mm diameter V-belt Pulley carrying four belts and mounted on a 30mm diameter spindle. (20)

Q.6 a) What are the advantages of Computer-Aided Drafting (CAD)? (05)
b) Write a short note on Documentation Management. (05)
c) Figure No. 3 shows the front view and LHS view of an object. Draw an Isometric View. (10)

Q.7 a)Explain the concept of the Finite Element Method (FEM) briefly and outline the procedure.(10)

b) Explain the following 2D Drawing Auto CAD commands from the Modify Toolbar with the help of sketches: Erase, Copy, Trim, Move, Mirror. (10)

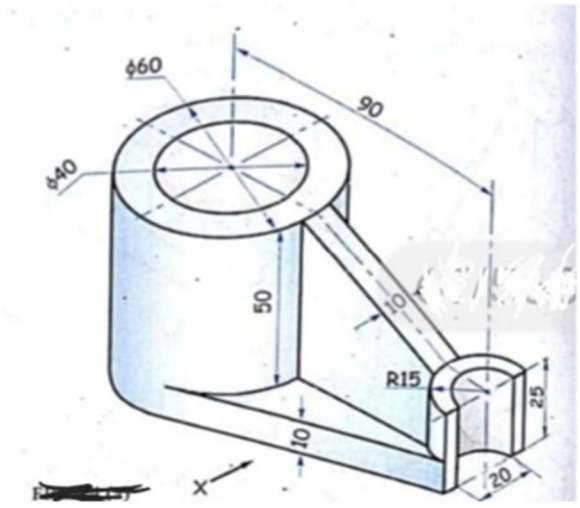


Figure No. 1

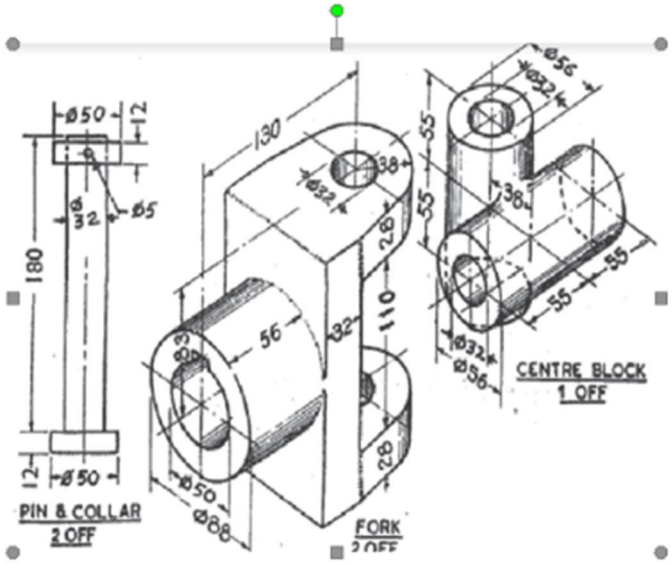


Figure No. 2

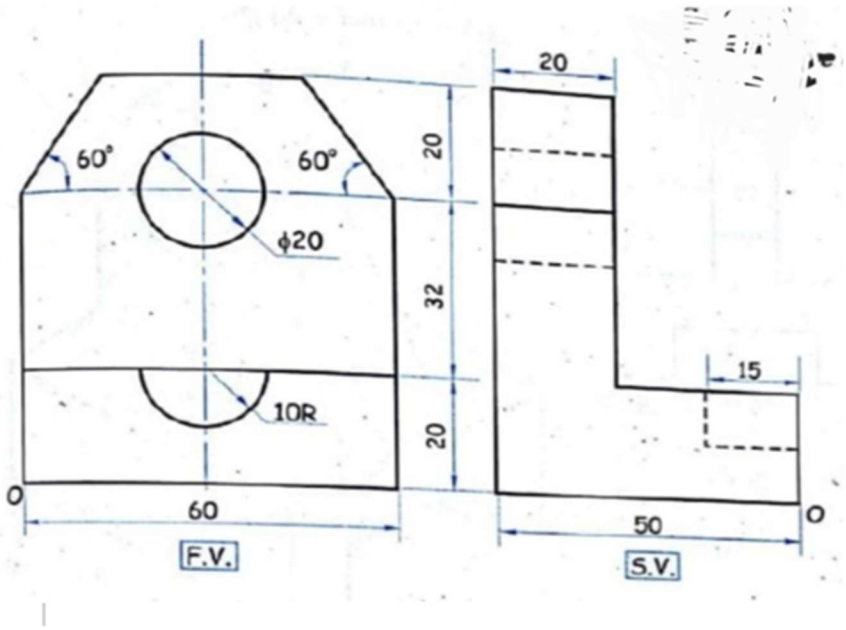


Figure No. 3

INDIAN INSTITUTION OF INDUSTRIAL ENGINEERING
GRADUATESHIP EXAMINATION
Internal Assignment for February 2027 (Old Syllabus)
Preliminary
IE006 MATERIAL SCIENCE

Total Marks: 140

Instructions: All question are compulsory

Q1 a) Explain allotropy and its importance in engineering materials. (10)

b) Describe crystal systems and compare BCC, FCC and HCP structures (10)

Q2 a) Explain fatigue and creep. Discuss their significance in material selection. (10)

b) Describe the property spectrum and factors considered in selection of engineering materials. (10)

Q3 a) Explain composition, properties and applications of alloy steels. (10)

b) Compare ferrous and non-ferrous materials with suitable examples. (10)

Q4 a) Explain composite materials and insulating materials with applications. (10)

b) Discuss Injection moulding, Thermoforming processes used for plastics (10)

Q5 a) Explain the effect of carbon percentage on properties of steel with reference to the Fe–C diagram. (10)

b) Describe tempering and Nitriding processes with advantages and applications. (10)

Q6 a) Explain heat treatment defects and methods to avoid them. (10)

b) Discuss the principle, process and applications of heat treatment in engineering industries. (10)

Q7 a) Explain the importance of non-destructive testing. Discuss crack detection methods. (10)

b) Compare powder metallurgy with conventional manufacturing methods. Explain its applications (10)