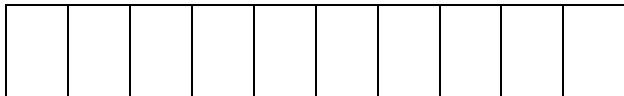


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Continuous Internal Examination 2–December 2025

Sub:	Research Methodology & Intellectual Property Rights					Code:	BRMK557
Date:	01/ 12/ 2025	Duration:	90 mins	Max Marks:	50	Sem:	V

Answer any 5 full questions

										Marks	CO	RBT
1	What is Engineering Research and brief out the objectives and motivation in engineering research									10	CO1	L1
2	What are the key ethical issues related to authorship? Explain each one.									10	CO1	L1
3	What are the various types of engineering research and briefly explain them									10	CO1	L1
4	Explain the various steps involved in the critical and creative reading process.									10	CO2	L1
5	Enumerate the impact of title and keywords on citations? Explain Citation based knowledge flow.									10	CO2	L2
6	Explain the various steps involved in the critical and creative reading process.									10	CO2	L1
7	Discuss the Design registration procedure by using a flowchart.									10	CO5	L2

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Continuous Internal Examination 2–December 2025

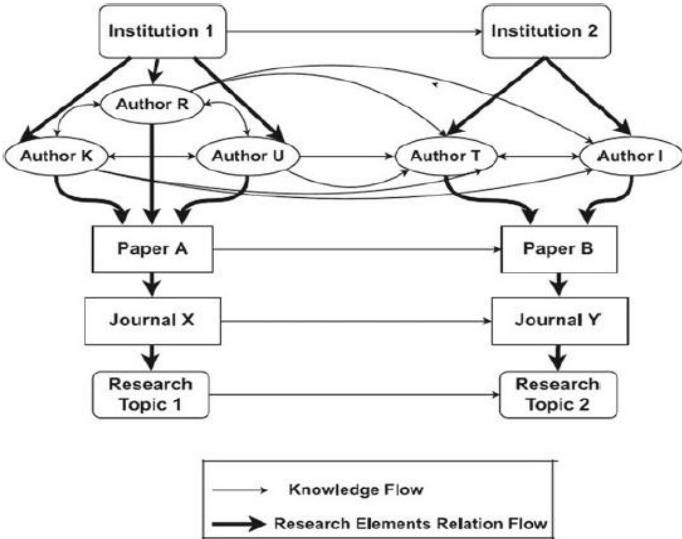
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7	Discuss the Design registration procedure by using a flowchart.									10	CO5	L2

		Marks	CO	RBT
1	<p>What is Engineering Research and brief out the objectives and motivation in engineering research.</p> <p>Ans: Research refers to careful, well defined (or redefined), objective and systematic method of search for knowledge, or formulation of theory, that is driven by inquisitiveness for that which is unknown and useful on a particular aspect so as to make an original contribution to expand the existing knowledge base.</p> <p>Objectives of research</p> <p>To solve new and important problems. ♦ Concluding research outcome should be new*. ♦ Circumstantial evidence, intuition and imagination may lead to possible conclusion. ♦ Rarely, the initial targets might change. ♦ Some targets might be unrealisable. ♦ Negative results ♦ May lead to non target discoveries which might be new</p> <p>Intrinsic motivations:</p> <ul style="list-style-type: none"> ♦ Interest, challenge, learning, meaning, purpose ♦ Linked to strong creative performance. <p>Extrinsic motivations</p> <ul style="list-style-type: none"> ♦ Fame, money, awards, praise, status - STRONG MOTIVATORS - block creativity. ♦ Eg., research outcome may enable to get a patent - rich and fame <p>External motivation</p> <ul style="list-style-type: none"> ♦ Competition, collaboration, commitment, Encouragement etc. <p>Personal motivation</p> <ul style="list-style-type: none"> ♦ In solving unsolved problems, intellectual joy, service to community, respectability etc. <p>Other factors</p> <ul style="list-style-type: none"> ♦ Wanting to do better than what has been achieved. ♦ Improve state of art in technology ♦ Contribution to improvement in society ♦ Fulfilment of historical legacy in the immediate socio-cultural context 	2	CO1	L1
2	<p>What are the key ethical issues related to authorship? Explain each one.</p> <p>Whitbeck raised two simple but significant questions to address the tricky issue of authorship in research:</p> <ol style="list-style-type: none"> (1) who should be included as an author and (2) the appropriate order of listing of authors <p><u>Academic authorship involves:</u> communicating scholarly work, establishing priority over their discoveries and building peer reputation, comes with intrinsic burden of acceptance of the responsibility for the contents of the work.</p> <p><u>Ethical issues as described by Newmen and Jones:</u></p> <p>Credit for research contributions</p> <p>Authorship - Accountability, significant contributor in research design, data interpretation or writing of paper</p> <p>Citation - previously published research work.</p> <p>Acknowledgement - External inputs to research work</p>	3	CO1	L1
3	<p>What are the various types of engineering research and briefly explain them</p> <p>Ans: Types of engineering research: Descriptive vs Analytical research</p> <ul style="list-style-type: none"> ♦ Descriptive research ♦ comparative and co relational methods, fact-finding investigation, No control over the variables rather focus on reports. ♦ E.g. Online learning impact on student attendance, grades and engagement levels ♦ Analytical research ♦ Facts available for analysis, critical evaluation, Better control over variables, focus on the outcomes. 	2.5	CO1	L1

	<p>❖E.g.How and why online learning impacts student learning?</p> <p>Applied vs fundamental research</p> <p>Applied research Focuses on immediate problems facing the organisation, Research related to socio-economical trends.</p> <p>e.g. focus given on more practical and experimentations to provide the solution to treat the disease</p> <p>Fundamental research Pure or basic research, formulation of theory and generalizations.</p> <p>Eg. Mathematical researches or study of basis of specific disease without immediate treatment.</p> <p>Quantitative vs Qualitative research</p> <p>Quantitative research Uses statistical observations, large data involved.</p> <p>E.g. focused on answering what and how behind a phenomenon or behavior</p> <p>Qualitative research Less volume of data, focus on few non representative cases.</p> <p>E.g. focused on answering why behind a phenomenon or behavior</p>			
4 Ans:	<p>Explain the various steps involved in the critical and creative reading process.</p> <p>Critical Reading</p> <ul style="list-style-type: none"> • Be suspicious and ask questions. <ul style="list-style-type: none"> – Have the authors attempted to solve the right problem? – Are there simpler solutions that have not been considered? – What are the limitations (both stated and ignored) of the solution and are there any missing links? – Are the assumptions that were made reasonable? – Is there a logical flow to the paper or is there a flaw in the reasoning? – whether the data presented in the paper is right data to substantiate the argument? – whether the data was gathered and interpreted in a correct manner? – whether some other dataset is more compelling? <p>Creative reading</p> <ul style="list-style-type: none"> • Requires positive approach. • In creative reading, the idea is to actively look for other applications, interesting generalizations, or extended work which the authors might have missed? • Are there plausible modifications that may throw up important practical challenges? • One might be able to decipher properly if one would like to start researching an extended part of this work, and what should be the immediate next aspect to focus upon. 	5	CO2	L1

<p>5 Enumerate the impact of title and keywords on citations? Explain Citation based knowledge flow.</p> <ul style="list-style-type: none"> • <u>Titles importance and impact</u> <ul style="list-style-type: none"> • The title is a key factor in attracting readers and conveying the paper's subject. • A well-crafted title is informative, attention-grabbing, and aids in marketing the paper. • The title influences the paper's visibility during literature searches and contributes to its traceability. • <u>Keywords and its role</u> <ul style="list-style-type: none"> • Keyword represent essential information as well as main content of the article, which are relevant to the area of research. • Search engines, journal, digital libraries, and indexing services use keywords. • Keyword ensures that readers are aware about research articles and their content • <u>Citation based Knowledge:</u> <ul style="list-style-type: none"> • knowledge flow and elements such as researchers, papers, journal publications or conferences across institutions through citation. • If paper A is cited by paper B, then knowledge flows through citation networks across institutions.  <p>Fig. 3.1 Citation-based knowledge flow [17]</p>	2 2 3 3	CO2	L2
<p>6 Explain the various steps involved in the critical and creative reading process.</p> <p>Repeated question same as Question 4</p>	10	CO2	L1
<p>7 Discuss the Design registration procedure by using a flowchart.</p> <p>Ans Designs, he can proceed with filing an application for Design registration. The application for registration of Design can be filed by an individual, small entity, institution, organization and industry. The applicant submits the registration application at the Design Office Deputy Controller of Patents & Designs, Patent Office, Intellectual Property Office. After the application has been filed, an officer (examiner) analyses the application for qualifying the minimum standards laid down for eligibility criteria for registration. In case of any query, the same is sent to the applicant and he is supposed to respond within 6 months from the objection raised. Once the objections are removed, the application is accepted for registration. The particulars of the application, along with the representation of the article, are published in the Official Journal of Patent Office (http://www.ipindia.nic.in/journal-patents.htm). If no objection is received from the public, the Design is registered. After the registration of the Design, the applicant becomes the proprietor of the Design and is conferred with the exclusive right to apply that Design to the article belonging to the class in which it is registered. The applicant puts up a request for issuance of a certificate of registration (for an</p>		CO5	L2

Industrial Design). A flow chart of the registration process is mentioned below:
Flow graph

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Figure 2.10: Flowchart for the process of Design registration.

