

# Model Question Paper (2018 Scheme)

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## Fifth Semester B.E. Degree Examination 18IP55: Work Study and Ergonomics

**TIME: 03 Hours**

**Max. Marks: 100**

**Note: Answer any one full question from each module**

<b>Module -1</b>			<b>Marks</b>
Q.01	a	What is meant by work content? Distinguish between the concepts of basic work content and excess work content.	10
	b	Explain the contribution of work-study in enhancing the productivity in organizations.	10
<b>OR</b>			
Q.02	a	What is meant by productivity? Elaborate The three ways to increase productivity.	10
	b	Review any four management techniques to reduce the work content due to product.	10
<b>Module-2</b>			
Q. 03	a	List different methods of recording the activities in method study. Explain any two of them in detail.	10
	b	List and explain the steps involved in the conduction of method study.	10
<b>OR</b>			
Q.04	a	What is work measurement? Explain briefly the work measurement techniques.	10
	b	Explain the following terms with reference to work sampling:  (i) Need of confidence level (ii) Determination of sample size	10
<b>Module-3</b>			
Q. 05	a	What is time study? Explain the steps in conducting the time study.	10
	b	Explain briefly the 'standard rating' and 'standard performance' in time study.	10
<b>OR</b>			
Q. 06	a	The workmen in the engineering company are expected to work for 400 minutes in a shift of 8 hours. The remaining time is meant for rest and personal allowances/ needs,etc. i) Determine the standard time per piece of a job Whose normal time is 2 minutes. ii) Calculate the number of pieces to be produced per day iii) if a worker engaged on the above job produced 180 pieces in the shift, what is the efficiency?	10
	b	What is meant by interference allowance? Review the factors influencing interference allowance.	10
<b>Module-4</b>			
Q. 07	a	Distinguish between the terms 'Ergonomics' and 'Human factors engineering'.	10
	b	What is organizational ergonomics? Review the key features of it.	10
<b>OR</b>			
Q. 08	a	Explain the key features of the following:	10

		i) Cognitive ergonomics ii) Environmental ergonomics.	
	b	Evaluate the influence of the following characteristics of environment on human element in work system: i) Climate ii) Light	10
<b>Module-5</b>			
Q. 09	a	What is the objective of quantitative displays? Explain the two types of conventional quantitative displays.	10
	b	Explain the four types of human functions (tasks), involved in the reception of auditory signals.	10
<b>OR</b>			
Q. 10	a	Distinguish between the qualitative and quantitative displays in a typical Man Machine interaction system.	10
	b	Illustrate typical Man–Machine interaction cycle. Explain the key interactions in cycle with examples.	10

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**Note: Answer any one full question from each module**

<b>Module -1</b>			<b>Marks</b>
Q.01	a	Define productivity. Explain briefly material productivity and labour productivity.	10
	b	List and briefly discuss the factors which affect the productivity.	10
<b>OR</b>			
Q.02	a	Define work study, method study, and work measurement. Illustrate the relationship amongst them with a neat diagram.	10
	b	'Total work content is given as a sum of basic work content' and 'excess time'. Explain the factors leading to the "excess time".	10
<b>Module-2</b>			
Q. 03	a	List and explain the factors that are to be taken while conducting method study.	10
	b	Write a brief note on the following: i) Flow process chart ii) Multiple activity charts.	10
<b>OR</b>			
Q.04	a	What is a Travel chart? Explain with an example and neat sketch, how is a Travel chat different from String diagram?	10

	b	Explain briefly different techniques of work measurement. Define work sampling and mention its advantages.	10
<b>Module-3</b>			
Q. 05	a	Define time study. Discuss briefly the steps involved in conducting a time study.	8
	b	Define an element. Specify the general rules for dividing the job in to an element.	6
	c	An observer has taken the following observations of an element as given below. 6, 7, 6, 8, 7, 5, 6, 8, 7, 6, 6 and 7 [all in 0.01 minute]. Determine the number of observations required for a confidence level of 95% and accuracy of $\pm 5\%$ .	6
<b>OR</b>			
Q. 06	a	Define Rating. List the different methods of performance rating and briefly explain any two methods.	10
	b	List and briefly explain the factors which affect the rate of working.	10
<b>Module-4</b>			
Q. 07	a	Define Ergonomics. Mention the objectives of Ergonomics.	10
	b	Discuss how the following cognitive factors affect the human work: i) Perception ii) Memory iii) Decision-making	10
<b>OR</b>			
Q. 08	a	Discuss the impact of the following factors while performing an operation: i) Noise ii) Temperature iii) Lighting iv) Climate	10
	b	Define Fatigue. What are the adverse effects of fatigue?	10
<b>Module-5</b>			
Q. 09	a	What is a man machine system? What are its characteristics? With a neat diagram, explain the important components of a man-machine system	10
	b	Enumerate the key characteristics/functions of a person in a man-machine system.	10
<b>OR</b>			
Q. 10	a	List and briefly explain the various types of displays. Discuss the influence of Noise, Vibration, and Light on human Efficiency.	10
	b	Explain the general rules for selecting a proper control in a man-machine system.	10