	Reg. No.												
	Question Paper Code	1	3232	2									
	B.E. / B.Tech DEGREE EXAMINAT	IOI	NS.	NO	V /	DF	EC 2	024					
	Seventh Semester												
	Mechanical Enginee	rinc	Ţ										
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р	Kegulations - 202	0							ъſ	м	. 1	1	00
D	uration: 3 Hours								Ma	X. M	art	KS: 1	00
	$PART - A (MCQ) (20 \times 1 = 2)$	20 N	lark	ks)						Mai	rKS	K – Level	0
1	Answer ALL Questio What is one of the main roles of an Industrial Engineer?	ns								1		K1	COI
1.	(a) To perform product testing (b) To d	esio	n co	าทราเ	mei	r ni	odu	rte		1		IX I	001
	(c) To optimize complex systems and processes (d) To s	uner	vise	e ass	eml	hlv	line	wo	rkers				
2.	In the context of production systems, what does the term "i	npu	t-ou	tput	mo	del	l" rei	fer t	o?	1		<i>K1</i>	COI
	(a) The relationship between product design and production	ı tin	ne	I									
	(b) A framework that illustrates the flow of materials throu	gh a	l sys	tem									
	(c) A method for calculating production costs												
	(d) A software used for inventory management												
3.	How does Production Management differ from Industrial E	ngi	neer	ing?)					1		Kl	COI
	(a) Production Management focuses on process optimization	on, v	vhile	e Inc	lust	rıa	l Eng	gine	ering	5			
	does not (b) Production Management deals with day to day apprecia	1	wh:1	la In	due	tric	1						
	Engineering focuses on long-term improvements	118,	wiiii	le m	laus	un	11						
	(c) There is no difference: they are the same field												
	(d) Industrial Engineering focuses solely on financial aspec	ts											
4.	What type of productivity measure focuses on output per u	nit c	of in	put?	,					1		<i>K1</i>	COI
	(a) Total productivity (b) Labor pr	(b) Labor productivity											
	(c) Capital productivity (d) Multifac	tor	prod	lucti	ivity	/							
5.	Which of the following is NOT a factor affecting plant loca	for affecting plant location? 1 K1 CO.					CO2						
	(a) Proximity to suppliers (b) Labor a	vail	abil	ity									
((c) Color of the building (d) Iransp	ortat	ion	tacı	litie	s				1		K1	co^{2}
6.	In a process layout, workstations are arranged based on: (a) The sequence of operations (b) Similar fi	1 on: I Ki					Π	002					
	(a) The sequence of operations (b) Similar (c) The size of the equipment (d) Customer	den	nanc	01 0 I nat	terr	all 15	0115						
7.	Which method of facility layout planning emphasizes mini	mizi	ng 1	nate	erial	ha	ndli	ngr	osts) 1		<i>K1</i>	CO2
<i>,</i> .	(a) Block diagram (b) Flow	oroc	ess	char	t								
	(c) Systematic layout planning (d) Multi-	floc	or lay	yout									
8.	In terms of plant location, what does the term "site selectio	n" re	efer	to?						1		<i>K1</i>	CO2
	(a) Choosing the type of layout												
	(b) Evaluating and choosing a specific geographical location	n											
	(c) Deciding on the facility size												
0	(d) Selecting equipment and machinery									1		V1	cor
9.	(a) To increase employee solaries (b) To identify and aliminate unnecessary work					ΛI	COS						
	(a) To increase employee salaries (b) To identify (c) To enhance product design (d) To improve	ana mar	enn Izati	nna	trot		ioc	sary	wori	s.			
10	Which of the following is an ergonomic consideration	mai n w	. KCU Zhen	ng s de	sual sig	nin	σя	sta	ndin	or 1		K1	CO3
10.	workstation?		1101	i ut	JIEI		5 u	Jid	nam	5			
	(a) High chair height (b) Non-ac	ljust	able	e mo	nito	or h	neigh	t					
	(c) Anti-fatigue mats (d) Fixed t	ootr	ests				U						

11.	In time study, what is the primary method used to collect data?	1	<i>K1</i>	CO3		
	(a) Surveys (b) Observations (c) Interviews (d) Historical data					
12.	Which principle of motion economy involves using the least amount of motion necessary to perform a task?	1	K1	СО3		
	(a) Reduce the distance of travel (b) Minimize unnecessary movements					
	(c) Use smooth and continuous motions (d) Optimize tool and material placement					
13.	Which term is having a closest meaning as Sampling Distributions?	1	K1	<i>CO</i> 4		
	(a) Control charts (b) On-site inspection					
14	(c) Whole lot inspection (d) Acceptance sampling	1	K I	CO4		
14.	limit and only 2 of 20 are plotted between the center line and the lower control limit what	1	ΛI	004		
	can we say about the process state?					
	(a) In control (b) Out of control					
	(c) Data is not enough to predict (d) Process state is not dependent over this data					
15.	When is the 100% inspection done?	1	K1	<i>CO</i> 4		
	(a) The supplier's process is so good that defective units are never encountered					
	(b) The supplier's process is so bad that almost every unit is defective					
	(c) The component is extremely critical					
	(d) The component is moderately critical			~ ~ .		
16.	Double sampling plan is	Ι	KI	<i>CO</i> 4		
	(a) Only 2 units are checked					
	(b) Only the first and last lot is checked 100%					
	(d) Only two samples of n units are checked (necessarily)					
17	Which of the following is a qualitative forecasting technique?	1	<i>K1</i>	CO5		
17.	(a) Moving averages (b) Exponential smoothing					
	(c) Delphi method (d) Regression analysis					
18.	Economic Batch Quantity (EBQ) is primarily used to:	1	K1	CO5		
	(a) Maximize production costs (b) Minimize total inventory costs					
	(c) Increase lead time (d) Reduce labor costs					
19.	What is the purpose of a Gantt chart in production scheduling?	1	K1	<i>CO5</i>		
	(a) To display the sequence of operations (b) To evaluate employee performance					
20	(c) To forecast future sales (d) To assess quality control measures	1	K1	CO5		
20.	(a) A course for construction of domand (b) Overproduction of goods	1	ΛI	05		
	(a) Accurate forecasting of demand (b) Overproduction of goods (c) Lack of raw materials (d) Employee satisfaction					
	(c) Lack of faw matchais (d) Employee satisfaction					
	PART - B $(10 \times 2 = 20 \text{ Marks})$					
	Allswei ALL Questions			~ ~ .		
21.	What is industrial engineering and state its objectives?	2	KI	COI		
22.	Define productivity and list out the factor affecting in productivity.	2	K1	<i>CO1</i>		
23.	Compare product layout and process layout.	2	K2	<i>CO2</i>		
24.	What is Integer Linear Programming (ILP) in the context of line balancing?	2	K1	<i>CO2</i>		
25.	What is the purpose of stop watch time study techniques?	2	<i>K1</i>	CO3		
26	List the advantages of using work sampling over traditional time study methods	2	<i>K1</i>	CO3		
20. 27	What is statistical quality control and how does it contribute to maintaining product	2	K1	CO4		
41.	quality in manufacturing?	-		207		
28.	Differentiate control charts and acceptance sampling in the context of SQC.	2	K2	<i>CO4</i>		
29.	List out the objectives of process planning.	2	K1	CO5		
30	What is meant by 'EOO'?	2	<i>K1</i>	CO5		

PART - C ($6 \times 10 = 60$ Marks)

Answer ALL Questions

31.	a)	Explain the various roles and responsibilities of an Industrial Engineer.	10	K2	CO1				
OR									
	b)	Discuss the significance of Industrial Engineering in improving organizational efficiency and productivity.	10	К2	CO1				
32.	a)	Explain the primary objectives of plant layout and how they impact productivity and efficiency.	10	K2	CO2				
	OR								
	b)	Outline the steps in the plant layout procedure and explain the significance of each step.	10	К2	CO2				
33.	a)	Explain the Method Study procedure and its significance in work design.	10	K2	CO3				
	,	OR							
	b)	Interpret the role of ergonomics in designing workstations to reduce physical strain and improve productivity.	10	K2	СО3				
34.	a)	Explain the use of control charts for variables, including the types of data they monitor and their application.	10	K2	<i>CO4</i>				
	OR								
	b)	Describe the steps involved in creating an X-bar and R-chart for variables in a manufacturing process.	10	К2	<i>CO4</i>				
35.	a)	Discuss the role of forecasting in production planning. What methods are used for demand forecasting and how do they impact production schedules?	10	K2	CO5				
	b)	Define Economic Batch Quantity (EBQ) and explain how it benefits production planning.	10	K2	CO5				
36.	a)	Discuss how acceptance sampling techniques are applied to ensure product quality, and describe the different types of sampling plans.	10	K2	<i>CO4</i>				
	b)	Explain the importance of scheduling in production planning and list common scheduling methods.	10	K2	CO5				