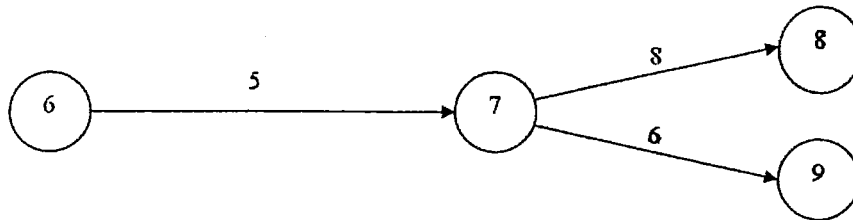所別： 工業管理研究所 碩士班 工業管理組(一般生)　　第1頁 / 共4頁

科目： 生產作業與管理

＊本科考試禁用計算器

一、選擇題（單選題）（33 pts）每小題 3 分。

請注意！回答時請標明題號，並以大寫 A、B、C、D、E 回答。 請將選擇題答案寫在答案卷上，未標明題號者，以零分計算。

1. A method used for establishing a logical framework for identifying the required activities for the project is called:
   A) Work breakdown structure
   B) PERT
   C) planning matrix
   D) crashing
   E) critical path analysis

2. Consider the portion of a project depicted by this graph:

   What is the latest start time of activity 6-7 if the latest finish of activity 7-8 is 26, and the latest finish of activity 7-9 is 23?
   A) 18
   B) 17
   C) 13
   D) 12
   E) 10

3. The matrix below shows relative costs for various job-machine combinations. Which set of pairs constitutes the minimum-cost solution using the Assignment method?

	Machine		
	A	B	C
Job 1	$6	0	0
2	0	3	4
3	0	1	2

   A) 1-B, 2-C, 3-A
   B) 1-B, 2-A, 3-C
   C) 1-A, 2-C, 3-B
   D) 1-A, 2-B, 3-C
   E) 1-C, 2-A, 3-B

4. For the jobs listed below, which processing sequence would result using Johnson's Rule?

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Processing time (hrs)

Job	Center 1	Center 2
a	6	11
b	12	8
c	5	9
d	10	7

   A) c-a-d-b
   B) b-d-a-c
   C) a-b-c-d
   D) d-c-b-a
   E) c-a-b-d

5. One important objective of purchasing is to:
   A) set quality standards for purchased items
   B) be knowledgeable about new products
   C) maintain numerous sources of supply
   D) obtain the lowest prices on all purchased items
   E) determine the processes that should be used

6. Which one of these would not be a factor in determining the reorder point?
   A) the EOQ
   B) the lead time
   C) the variability of demand
   D) the demand or usage rate
   E) all are factors

7. In MRP, "scheduled receipts" are:
   A) identical to "planned-order receipts"
   B) identical to "planned-order releases"
   C) open orders (that is, ordered before the first time bucket, but not delivered yet)
   D) "net requirements"
   E) available to promise inventory

8. Which of the following best describes aggregate planning?
   A) the link between intermediate term planning and short term operating decisions
   B) a collection of objective planning tools
   C) make or buy decisions
   D) an attempt to respond to predicted demand within the constraints set by product, process and location decisions
   E) manpower planning

9. Fixing a problem will often cost money; to minimize these costs it is best to find and fix the problem _____.
   A) just before shipping our product to the customer
   B) immediately after we complete the last operation
   C) during the design phase

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D) just before we begin the first production operation

E) regardless of when you fix the problem, costs are about the same

10. When a process is in control, it results in there being, on average, 16 defects per unit of output. C-chart limits of 8 and 24 would lead to a _____ chance of a Type I error.
    A) 67%
    B) 92%
    C) 33%
    D) 0.03%
    E) 5%

11. A lot can be "accepted" or "rejected" in a double-sampling plan:
    A) after one sample is taken.
    B) after two samples are taken.
    C) only after two samples are taken.
    D) All of the above are correct.
    E) Only a and b are correct.

二、 (9 pts) Explain the following terms.　（問答題）
   (a) (3 pts) Backsourcing
   (b) (3 pts) Kaizen
   (c) (3 pts) Fill Rate

三、 (8 pts) Given the information below, determine the following:　（申論題）
   (a) (4 pts) Processing sequence using SPT and EDD.
   (b) (4 pts) Average completion time and average job tardiness using SPT and EDD.

Job	Processing Time (hrs)	Hour Due
A	17	15
B	10	25
C	5	20
D	7	32
E	11	38

四、 (10 pts) Tina Wilson is currently working a total of 12 hours per day to produce 240 dolls. She thinks that by changing the paint used for the facial features and fingernails that she can increase her rate to 360 dolls per day. Total material cost for each doll is approximately $3.50; she must invest $20 in the necessary supplies (expendables) per day; energy costs are assumed to be only $4.00 per day; and she thinks she should be making $10 per hour for her time. Viewing this from a total (multifactor) productivity perspective, what is her productivity at present and with the new paint?　（計算題）

五、 (10 pts) A firm uses simple exponential smoothing with $\alpha = 0.2$ to forecast demand. The forecast for the week of January 15 was 500 units whereas the actual demand turned out to be 450 units. Calculate the weekly demand forecast for the week of January 22.　（計算題）

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六、 (20 pts) Jackson Custom Machine Shop has a contract for 130,000 units of a new product. Sam Jumper, the owner, has calculated the cost for three process alternatives. Fixed costs will be: for general-purpose equipment (GPE), $150,000; flexible manufacturing (FMS), $350,000; and dedicated automation (DA), $950,000. Variable costs will be: GPE, $10; FMS, $8; and DA, $6. Which should he choose? （計算題）

(a) (5 pts) Solve the problem analytically,

(b) (5 pts) Solve the problem graphically,

(c) (5 pts) Using either your analytical solution found in (a) or the graphical solution found in (b), identify the volume ranges where each process should be used.

(d) (5 pts) If Jackson Custom Machine can convince the customer to renew the contract for another two years, what implications does this have for his decision?

七、 (10 pts) A major drug store chain wishes to build a new warehouse to serve the whole Midwest. At the current moment, it is looking at three possible locations. The factors, weights, and ratings being considered are given below. Which city should they choose? （計算題）

Factor	Weights	Ratings		
		Peoria	Des Moines	Chicago
Nearness to markets	20	4	7	5
Labor cost	5	8	8	4
Taxes	15	8	9	7
Nearness to suppliers	10	10	6	10

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