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                                                                                        PCME4404

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8th Semester Regular / Back Examination 2016-17
PRODUCTION AND OPERATION MANAGEMENT
BRANCH: CIVIL
Time: 3 Hours
Max Marks: 70
Q.CODE: Z113
Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.

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Q1   **Answer the following questions:**   **(2 x 10)**
  a) What is interference Allowance?
  b) What are the major functions of Material Requirement Planning (MRP)?
  c) What is product oriented layout?
  d) What is Productivity?
  e) What is flow time?
  f) What is carrying cost?
  g) What are the objectives of computer aided quality control?
  h) What is forecast error?
  i) What does ISO stand for? Where is it situated?
  j) What is flexible manufacturing system (FMS)?

Q2 **a)** Define "Quality".   **(2)**
     b) What are the Characteristics of Stages & Phases of Product Life Cycle (PLC).   **(8)**

Q3 **a)** An operator manufactures 50 jobs in 6 hours and 30 minutes. If this time includes the time for setting his machine. Calculate the operator's efficiency.
Standard time allowed for the job was:
Setting time = 35 min
Production time per piece = 8 min.   **(5)**

     b) The demand for soap is 50 units per month and the products are withdrawn uniformly. The expenses incurred while purchasing for each time is Rs. 200/-. The cost of each soap is Rs 20/- per item and the inventory holding cost of Rs. 4 per item per month. In addition, a profit of Rs 2 per item per month is gained from selling the soap. Determine how often to make purchases and what size it should be such that it will minimize the total inventory cost?   **(5)**

Q4 **a)** What is Material Requirements Planning (MRP)? Discuss the objectives of MRP system. **(5)**

b) One of the two wheeler manufacturing company experienced irregular but usually increasing demand for three products. The demand was found to be 420 bikes for June and 440 bikes for July. They use a forecasting method which takes average of past year to forecast future demand. Using the simple average method demand forecast for June is found as 320 bikes (Use a smoothing coefficient 0.7 to weight the recent demand most heavily) and find the demand forecast for August using Exponential Smoothing Method. **(5)**

Q5 **a)** What are steps involved to get the optimum sequence for Two – Machine Scheduling Problem using Johnson's algorithm. **(5)**

b) What are the Objectives and Benefits of inventory Control? **(5)**

Q6 **a)** What are the seven principles of Master Scheduling? **(5)**

b) What are the benefits of Total Quality Management (TQM)? **(5)**

Q7 The following tasks are to be performed on an assembly line. The workday is 8 hours long and the demand for completed product is 192 per day. **(1+1+3+5)**

Task	Time (Seconds)	Tasks that must precede
A	40	None
B	80	A
C	30	D, E, F
D	25	B
E	20	B
F	15	B
G	120	A
H	145	G
I	130	H
J	115	C, I
Total	720	

(a) Find the cycle time.
(b) What is the theoretical number of workstations?
(c) Draw the precedence diagram.
(d) Balance the line using longest operating time rule and calculate efficiency and balance delay of the solution obtained.

Q8 **Write short notes on any two:** **(5 x 2)**
  a) ISO 9000 Series.
  b) Poka Yoke.
  c) Kaizen.
  d) Rank Order Clustering Algorithm (ROC).