6/10/26 FN

Name :
Roll No:

MAR ATHANASIUS COLLEGE OF ENGINEERING, KOTHAMANGALAM – 686 666

DEPARTMENT OF MECHANICAL ENGINEERING
SECOND SESSIONAL EXAMINATION, OCTOBER 2026
THIRD SEMESTER (ME)

B24ME2T02 MECHANICS OF FLUIDS

Time – 1.5 Hour **Max: 40 Marks**

PART-A
Answer All Questions

1.	State Bernoulli's equation and list the assumptions in its application.	[CO 3]	3 Marks
2.	Name the various parts of a Venturimeter and explain its working with a neat sketch.	[CO 3]	3 Marks
3.	State the Chezy's equation, explain its various terms and name the condition under which it is applied.	[CO 4]	3 Marks
4.	Name and explain the major and minor losses in pipe flow.	[CO 4]	3 Marks

PART-B
Answer All Questions

5. a	Derive Euler's equation of motion for fluid flow and obtain the Bernoulli's equation for real fluids.	[CO 3]	7 Marks
5.b	A pitot-static tube placed in the center of a 300 mm pipe line has one orifice pointing upstream and other perpendicular to it. The mean velocity in the pipe is 80% of the central velocity. Find the discharge through the pipe if the pressure difference between the two orifices is 60 mm of water. Take the coefficient of pitot tube as 0.98.	[CO 3]	7 Marks
6. a	For low viscosity and high velocity flow through a uniform circular pipe, develop the relationship between frictional head loss and the flow parameters using a suitable force balance equation.	[CO 4]	7 Marks
6. b	Oil is transported from a tanker to the shore at the rate of 0.6 m^3/s using a pipe of 32 cm diameter for a distance of 20 km. If the oil has viscosity of 0.1 N-s/m^2 and density of 900 kg/m^3. Assuming the flow to be either laminar or turbulent as applicable, determine the power required to maintain the flow.	[CO 4]	7 Marks

VISION

Mentoring to Ensure Excellence

MISSION

- To facilitate comprehensive and integrated development of students by providing quality education that encourages sustainable practices
- To mold disciplined and socially committed engineers capable of assuming professional leadership upholding national integrity

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MAR ATHANASIUS COLLEGE OF ENGINEERING, KOTHAMANGALAM – 686 666.

DEPARTMENT OF MECHANICAL ENGINEERING

SECOND SESSIONAL EXAMINATION, OCTOBER 2026
S5 MECHANICAL A & B BATCH

B24ME3P11 OPERATIONS MANAGEMENT

Time – 1.5 Hours **Max: 40 Marks**

PART-A
(Answer All Questions.)

1	List the three essential inputs required for Material Requirements Planning (MRP) and state their purposes.	**CO 3**	**3 Marks**
2	Define forecast error and explain why it is important to measure forecast accuracy.	**CO 2**	**3 Marks**
3	Discuss the primary objectives of an efficient inventory control system in an organization	**CO 4**	**3 Marks**
4	Explain the significance of Bill of Materials (BOM) within a (MRP) system.	**CO 3**	**3 Marks**

PART-B
(Answer All Questions.)

5(a) A manufacturing company has monthly demand for one of its products as follows: **CO 2** **14 Marks**

Month	Feb	March	April	May	June	July	Aug	Sep
Demand	520	490	550	580	600	420	510	610

Develop a three-period moving average forecast and a three-period weighted moving average forecast with weights 0.50,0.30 and 0.20 for the most recent demand values, in that order. Calculate MAD for each forecast, and indicate which would seem to be most accurate.

6(a)	Explain aggregate planning. List and discuss the various aggregate planning strategies.	**CO 3**	**10 Marks**
6(b)	Explain the static lot-sizing techniques in MRP.	**CO 3**	**4 Marks**

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