

22608

23242

3 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Answer each next main Question on a new page.
- (3) Illustrate your answers with neat sketches wherever necessary.
- (4) Figures to the right indicate full marks.
- (5) Assume suitable data, if necessary.
- (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

- 1. Attempt any FIVE of the following:** **10**
- a) State the application of AUTOCAD in chemical engineering.
 - b) List any four CAD initial setting commands.
 - c) Draw flanged elbow.
 - d) List any four pipe and vessel supports.
 - e) List method of fixing tubes on tube-sheet in heat exchanger with sketch.
 - f) List types of heads used for vessel.
 - g) Draw IS3232 symbol for
 - i) Centrifugal pump
 - ii) Jet ejector

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Describe line command and circle command with example.
 - b) Write the procedure for creating and saving new drawing in CAD.
 - c) Draw neat sketch of nipple and socket joint.
 - d) Draw neat sketch of saddle type support for horizontal vessel.
- 3. Attempt any THREE of the following:** **12**
- a) Describe layer and block command used in CAD.
 - b) List any four CAD initial setting commands with their application.
 - c) Draw neat sketch of welded neck flange.
 - d) Draw neat sketch of single rod and double rod hanger support for pipe.
- 4. Attempt any THREE of the following:** **12**
- a) Draw schematic view of Ball valve.
 - b) Draw neat and proportionate sketch of bracket support.
 - c) Draw neat sketches of any two types of agitators used in vessel.
 - d) Prepare specification sheet for heat exchanger.
 - e) Draw control scheme for distillation coloumn top product.
- 5. Attempt any TWO of the following:** **12**
- a) Draw neat and proportionate sketch of kettle type reboiler.
 - b) Read the following process description and draw block diagram.

Preheated and compressed Isopropanol (IpA) vapours is sent to a catalytic tubular reactor mentained at 500°C. Hot gases from reactor is condensed and scrubbed with water. In the scrubber IpA-Acetone mixture is seperated from hydrogen gas. The binary mixture is then passed through a fractionating column in which acetone is removed from top and binary mixture of IpA-water is then fed to another column where IpA is seperated as top product and water as bottom product.
 - c) Draw process flow diagram of Question No. 5 (a).

22608

[3]

Marks

6. Attempt any TWO of the following:

12

- a) Draw P and I diagram for the process given in Question No. 5 (a).
 - b) Draw tank farm diagram for process given in Question No. 5 (a).
 - c) Draw jacketed batch reactor.
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