

BACHELOR OF CHEMICAL ENGINEERING EXAMINATION, 2019**(THIRD YEAR SECOND SEMESTER)****CHEMICAL TECHNOLOGY - II**

Time: Three hours

Full Marks: 100

Answer any ten questions

10×10

Answers must be brief and to the point

- 1a) Modern concept is that the refinery and petrochemical complex should be situated in the same campus — why?
- b) In a modern refinery coking and visbreaking concepts are losing ground — then what are the alternative routes to process the feeds to the said units? Why?
- 2a) Why water is added to the desalter?
- b) What is the function of pump-around reflux?
- 3a) Tray tower or packed tower — which one for ADU and VDU and why? If tray is used then which type of tray? Why?
- b) No reboilers are used in ADU or VDU, then how distillation can take place?
- 4a) Catalytic reformer generally consists of three reactors of unequal size in series with inter-stage heating arrangement — why?
- b) Describe the Fluid Coking process (Flowsheet not needed).
- 5a) Discuss how the reactor section of the FCC operates (Flowsheet not needed).
- b) One hundred percent conversion is possible in a distillate hydrocracker — how?

[Turn over

- 6a) Between NG and LPG — which one is a comparatively safer fuel? Why?
- b) Merox is a sweetening processes and not a de-sulfurization process — Comment.
- 7a) How can the petrochemical precursors C_2 and C_3 be obtained from natural gas?
- b) Will crosslinking convert thermoplastic to thermoset? Give proper reasoning.
- 8a) In all types of catalytic (Ziegler-Natta) polymerization process, the principal steps are quite common — what are they?
- b) Use of PVC is associated with a serious disadvantage — what is it?
- 9a) There are two routes for making polyester (PET) — what are they? Which route is followed when?
- b) What is the difference between staple fiber and filament yarn?
- 10a) In filament-spinning, two types of impurities must be totally absent — what are they? What will happen if they are present?
- b) In cumene production, propylene is the limiting reactant — why? What is the function of propane?
- 11a) Briefly discuss the fat-splitting process to produce soap and glycerine (Flowsheet not needed).
- b) Briefly discuss the chrome tanning route to produce leather from skins/hides (Flowsheet not needed).