

KHULNA UNIVERSITY OF ENGINEERING & TECHNOLOGY

Department of Mechanical Engineering

B. Sc. Engineering 1st Year 1st Term Examination, 2020

Hum 1105

(English)

Time: 1 Hour 30 Minutes

Total Marks: 120

- N.B.:** i) Answer any TWO questions from each section in separate scripts.
ii) Figures in the right margin indicate full marks.

SECTION-A

- 1(a) Make sentences with the following structures using the words given in brackets. 10
- i) Subj. + verb + object (direct) + object (indirect). (Provide as verb)
 - ii) There + verb + subj. + adverb. (Work as verb)
 - iii) Since + subj. + verb + adverb of manner, Subj. + verb + adverb of place. (Study and do as verb)
 - iv) Subj. + relative pronoun in subj. form + verb + adv. + verb + noun complement. (Work and is as verb)
 - v) That + Subj. + verb + adv. + verb + noun complement. (Behave and is as verb)
- 1(b) Change the following words as asked in brackets and make sentence with the changed words. 10
- Intricacy (into adj.), Profanity (into adj.), Awkward (into noun),
Omission (into verb), Evacuation (into verb).
- 1(c) Make use of the following modals in sentence as asked in brackets. 10
- i) Can. (To offer someone something)
 - ii) Shall. (To propose someone for something in interrogative form)
 - iii) Should. (To express natural inference)
 - iv) Could. (To express past permanentability)
 - v) Will. (To express a polite request)
- 2(a) Transform the following sentences as asked in brackets. 10
- i) Labu, a teacher, is gentle. (Complex)
 - ii) That you study hard is fine. (Simple)
 - iii) You can't work hard because of your idleness. (Complex)
 - iv) Sabuj, who is studying hard, may cut a good figure in exam. (Simple)
 - v) Laizu studies hard, but can't progress in studies. (Simple)
- 2(b) Correct the following sentences. 10
- i) The story is worth to read.
 - ii) He has less shirts than his brother.
 - iii) He refused my invitation.
 - iv) Just do the same that I do.
 - v) Lions are not only found in Africa but also in Asia.
- 2(c) Express the following notions/functions in sentence. 10
- i) Reliance, ii) Tension, iii) Honesty, iv) Determination, v) Penitence.
- 3(a) Make Wh question with underlined words of the following sentences. 10
- i) Soma met us yesterday.
 - ii) Habib is five feet and eight inches.
 - iii) The river is 300 miles in length.
 - iv) The water of the pond is only five feet deep.
 - v) Salina is talented.
- 3(b) Make use of the following words in sentence as asked in brackets. 10
- Air (as verb), Age (as verb), Alarm (as verb), Book (as verb), Bank (as verb).

- 3(c) Complete the following sentences with clauses as asked in brackets. 10
- It is certain _____ . (Noun clause)
 - Rana, _____ , is amicable. (Adj. clause)
 - _____, no body believes in him. (Adverbial clause).
 - We call him _____ . (Noun clause)
 - He walks fast _____ . (Adverbial clause)

SECTION-B

- 4(a) Read the following passage carefully and answer the questions that follow. 18

We are human beings in the world only with the sense, which differentiates enlightenment from darkness. Enlightenment, separated from darkness, opens our eyes on things – which are welfare for human beings. Anything or concept, loving and liveable for humans, can exist in the world. It is possible in the time – they love one another and search knowledge. Jibanananda Das, a modern Bengali poet, says “তবু তারা আজকের আলোর ভিতরে/সম্বারিত হয়ে উঠে আজকের মানুষের সুরে/ যখন শ্রেমের কথা বলে/ অথবা জ্ঞানের কথা বলে” – (মানুষের মৃত্যু হলে). Contrary darkness, born from the void of enlightenment, destroys humanity. It is a sworn and so fatal enemy for humans. It imagines to create all barriers to the development of life. Human beings in darkness, not possible to call human beings, behave the life of a beast. Das again says, ‘এখনো যাদের কাছে স্বাভাবিক বলে মনে হয়/ মহৎ, সত্য বা রীতি, কিংবা শিল্প অথবা সাধনা/ শকুন ও শেয়ালের খাদ্য আজ তাদের হৃদয়।’ (অদ্ভুত আঁধার এক এসেছে এ পৃথিবীতে আজ). How can we move to the life of enlightenment? Let’s read the life of thoughts in life and surroundings. We should comprehend life and the surroundings, where it moves, know ourselves, search the reason why we are in the world, etc. For the purpose let’s study books – a storehouse of knowledge.

Questions:

- What is enlightenment?
- What is darkness?
- How can we reach enlightenment?

- 4(b) Make a precis of the above written passage (Q4(a)) with suitable title. 12
- 5(a) Write a paragraph on ‘Technology for Man’s Welfare’. 18
- 5(b) The ministry of Science and Technology invited application for some vacant posts of Assistant Engineers. Prepare a CV along with a job application. 12
- 6(a) Prepare a report on your hall library. 18
- 6(b) Write a letter to your friend currently studying in BUET asking him to conduct a research program in collaboration. 12

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Ch 1105

(Engineering Chemistry)

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SECTION-A

- 1(a) Discuss the reaction mechanism of free radical polymerization. 10
- 1(b) Define stereo specific polymer. Write the structure and properties of three types of stereo-specific polymer based on the following monomer – 10
 $\text{CH}_2 = \text{CHR}$, here R is the alkyl group.
- 1(c) Write notes on the preparation, properties and uses of the following: 10
(i) Bakelite
(ii) Low density polyethylene.
- 2(a) All fibers are polymer but all polymers are not fibers – Explain. 08
- 2(b) Define vulcanization. Why physico-chemical treatment of crude rubber is so important for rubber industry? 12
- 2(c) What is latex? Write the structure of cis-polyisoprene and trans-polyisoprene. 10
- 3(a) Write the name of common additives used in Portland Cement. Mention their functions. 10
- 3(b) Write down the characteristic properties of a good fertilizer. 08
- 3(c) What is pulp? Give a brief statistics of pulp and paper industries of Bangladesh. 12

SECTION-B

- 4(a) How can you prove that colloidal particles are electrically charged? 10
- 4(b) What are colloids? Point out the essential differences between lyophilic and lyophobic colloids. 10
- 4(c) What is coagulation of colloid? Name the factors that determine the rate of coagulation. 10
- 5(a) What is meant by atmospheric corrosion? Discuss the effect of humidity and dust particle on the rate of corrosion. 10
- 5(b) What is pitting? How is it formed? Discuss the disadvantages of pitting corrosion over other corrosion. 10
- 5(c) Discuss the electrochemical mechanism of corrosion with suitable diagram. 10
- 6(a) What is meant by 'unit process' and 'unit operation'? 08
- 6(b) Discuss the functions of flux and stabilizers in the manufacturing process of glass. 12
- 6(c) Why glass is called super cooled liquid? – Explain. 10