

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-V (NEW) - EXAMINATION – SUMMER 2018

Subject Code:2152601

Date:04/05/2018

Subject Name:Vulcanisation

Time:02:30 PM to 05:00 PM

Total Marks: 70

Instructions:

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1 (a) Why sulphur is used as universal vulcanizing agent? **03**
- Q.1 (b) Differentiate the vulcanized rubber and unvulcanized rubber. **04**
- Q.1 (c) Discuss in detail about the allotropic forms of sulphur. **07**
- Q.2 (a) List major components of structure of rubber vulcanizate. **03**
- Q.2 (b) Write a short note on vulcanization conditions. **04**
- Q.2 (c) Discuss in detail about the vulcanization of thick rubber articles. **07**
- OR**
- Q.2 (c) Discuss in detail about the limitations of vulcanization temperature. **07**
- Q.3 (a) What do you mean by co-agent? Also give it's examples. **03**
- Q.3 (b) Write a short note on resin cure. **04**
- Q.3 (c) Discuss in detail about the sulphenamides accelerators. **07**
- OR**
- Q.3 (a) Give classification of peroxide as a vulcanizing agent. **03**
- Q.3 (b) Explain the vulcanization of rubber by metal oxide with suitable examples. **04**
- Q.3 (c) Discuss in detail about thiourea accelerators. **07**
- Q.4 (a) What do you mean by 'ballotini'? Also give it's practical significance. **03**
- Q.4 (b) Write down advantages and disadvantages of steam vulcanization. **04**
- Q.4 (c) Explain effect of crosslink type and structure on the given properties of vulcanizate:(i)Tensile Strength(ii) Modulus **07**
- OR**
- Q.4 (a) Which different phases are observed during free heating? **03**
- Q.4 (b) Write a short note on cold cure. **04**
- Q.4 (c) Explain effect of crosslink type and structure on given properties of vulcanizate: (i)Dynamic Properties (ii) Ageing **07**
- Q.5 (a) What do you mean by pressurized vulcanization technique? List the products which are cured by this technique. **03**
- Q.5 (b) Explain effect of compounding on microwave vulcanization technique. **04**
- Q.5 (c) Discuss in detail about the molten salt batch technique. **07**
- OR**
- Q.5 (a) What do you mean by pressure less vulcanization technique? List the products which are cured by this technique. **03**
- Q.5 (b) Explain the principle of ultrasonic vulcanization technique. **04**
- Q.5 (c) Discuss in detail about vulcanization in water. **07**
