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**Question Paper Code: 59A02**

B.E./B.Tech. DEGREE EXAMINATION, NOV 2018

Elective

Agriculture Engineering

15UAG902- STORAGE AND PACKAGING TECHNOLOGY

(Regulation 2015)

Duration: Three Hours

Maximum: 100 Marks

Answer ALL Questions

PART --A (10 x 1 = 10 Marks)

1. Estimated storage losses in the chain of postharvest handling of grains is \_\_\_\_ CO1-R  
(a) 3% (b) 7% (c) 12% (d) 25%
2. The damage caused by tunneling in wooden parts leading to resulting in CO1-R  
weakening of storage structures is \_\_\_\_\_ type  
(a) Direct (b) Indirect (c) Thermal (d) Infestation
3. The following is the name of the traditional grain storage structure. CO2 - R  
(a) Pusa bin (b) Bunker (c) Bukhari (d) CAP
4. Squat silo has the wall to diameter ratio of CO2 - U  
(a) < 0.5 (b) 0.8 (c) 1.5 (d) 2
5. Which of the following is an example of biopolymer derived from micro CO3- R  
organisms  
(a) Polylactic acid (b) Thermobioplastic (c) Polyhydroxyalkanoate (d) Chytosen
6. Shrink film packaging material involves the use of \_\_\_\_\_ films that CO3- U  
have been stretched or oriented during manufacturing.  
(a) Thermoplastic (b) Bioplastic (c) Nonthermal (d) Microbial
7. White board coated with polyethylene is suitable for \_\_\_\_\_ CO4 -U  
(a) Moisture retention (b) Heat sealability  
(c) Antimicrobial property (d) Degradability

8. Contour fit is the major advantage of \_\_\_\_\_ films. CO4 -U  
 (a) Co-extruded (b) Bioplastic (c) Shrink (d) Laminated
9. The following is the type of modified atmosphere packaging CO5- R  
 (a) Aseptic packaging (b) Vacuum packaging  
 (c) Flexible packaging (d) CO<sub>2</sub>/N<sub>2</sub> packaging
10. Under good vacuum conditions, the oxygen level is reduced to CO5- R  
 (a) < 10% (b) 5% (c) < 1% (d) 50%

PART - B (5 x 2 = 10 Marks)

11. What are the indirect damages caused to the stored commodities? CO 1- U
12. What is angle of repose? CO 2 -U
13. List the few strategies that can be used to improve the quality of stored products. CO3- R
14. What are the properties of flexible films ? CO4 - R
15. What is vacuum packaging? CO5 - U

PART - C (5 x 16 = 80 Marks)

16. (a) Explain the different traditional storages for food grains in India. CO 1 - U (16)  
 Or  
 (b) Explain the sources of infesting the stored grains and measures that can be adopted to improve performance of traditional storage structures. CO 1 - U (16)
17. (a) Explain the basic treatments of enhancing the shelf life of fruits and vegetables CO2- U (16)  
 Or  
 (b) Explain briefly the controlled atmospheric (CA) storage system. Also write its merits and demerits. CO2- U (16)
18. (a) Explain basic requirements of packaging materials. Which factors are to be considered for objective assessment of packaging materials. CO3 - U (16)  
 Or  
 (b) Explain shrink and coextruded films with their advantages CO3 - U (16)

19. (a) Describe the importance of flexible films being used in packaging of raw and processed products. CO4- U (16)
- Or
- (b) Describe the types of plastic films/materials used in food packaging. CO4 -U (16)
20. (a) Explain the different packaging techniques/methods CO5- U (16)
- Or
- (b) Explain the use of retort pouch in packaging the thermally processed fruits and vegetables. CO5- Ana (16)

