INTERNATIONAL CENTRE FOR APPLIED SCIENCES
MAHE, MANIPAL

B.Sc. (Applied Sciences) in Engg.

End – Semester Theory Examinations – May 2021

IV SEMESTER – INTERNAL COMBUSTION ENGINES (IME243)

(BRANCH: MECHANICAL)

Time: 3 Hours **Date: 19 May 2021** **Max. Marks: 50**

- ✓ **Answer ALL questions.**
- ✓ **Missing data, if any, may be suitably assumed**
- ✓ **Draw sketches wherever required**

1A	Describe how autoignition happens in end gas. How do temperature factors affect knocking in SI engines?	**5**
1B	Which injector nozzle is used in high speed diesel engines? Explain why and draw the nozzle.	**5**
2A	Describe the different types of abnormal combustion in SI engines	**3**
2B	Explain with figures the significance of swirl in CI engines.	**4**
2C	List six good combustion chamber design principles for SI engines?	**3**
3A	Describe the working of a two-stroke diesel engine.	**6**
3B	What prediction does the fuel air cycle make regarding the variation of specific fuel consumption with mixture richness? How do you explain this variation?	**4**
4A	What is NOx? Describe the effect different variables have on the NOx formation in SI engines.	**5**
4B	Draw and label the parts of a thermal reactor. What is its function?	**5**
5A	Describe positive crankcase ventilation.	**3**
5B	Describe the effect an early exhaust opening has on the work produced by the engine.	**4**
5C	Discuss the merits and demerits of Wankel engine.	**3**

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