

**BIRLA INSTITUTE OF TECHNOLOGY & SCIENCE, PILANI**  
**SECOND SEMESTER 2021-2022**  
**Mid – Semester Test (Closed Book)**

Course No. : **ECON F244**  
Course Title : **Economic of Growth and Development**  
Date : **10/3/2022**  
Time : **02.00 PM - 03.30 PM**

Max. Marks : **70.00**  
Duration : **90 mints**  
Weightage : **35%**

**Instructions:**

- **Answer all the questions and it should be precise and complete.**
- **All the parts/sections of a question should be answered together.**
- **Start each question on a fresh page.**

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- Q1. Derive Harrod & Domar model of economic growth and discuss the similarities. [15]
- Q2. Derive the Solow growth model with their interpretation and graphically show the Solow steady state of growth. [15]
- Q3. (a). Let the aggregate production function is  $Y = \min\left(\frac{K}{5}, \frac{L}{10}\right)$ , real saving is 30% of income, growth rate of labour force is 4%. At time period 0 assume that  $K_0 = 45$  and  $L_0 = 85$ . In time period 1, what will be  $K_1$ ,  $L_1$ , and  $Y_1$ . Solve it by using the Neoclassical growth equation. [5]
- (b). Let  $y = r^2$ , (where  $r=K/L$  and  $y=Y/L$ ,  $Y$ =output,  $K$ =Capital,  $L$ =Labour), the depreciation rate is equal to 0.09,  $s=0.13$  ( $s$ =marginal propensity to save) under Solow growth model (i) Find steady state of capital-labour ratio; (ii) Find steady state of output; (iii) Find steady state of consumption level; and (iv) Find steady state of investment level. [5]
- (c) A firm's production function changes from  $Q = L^{1/3}K^{1/3}$  to  $Q = L^{1/3}K^{2/3}$ , what type of technological progress does these changes represent? [5]
- Q4. Write the assumptions of Uzawa's two sector model and explain how Uzawa has derived the balanced growth path in the two-sector model? [15]
- Q5. Write short note on: [10]
- (a) Hick's classification of technical progress.
- (b) Knife-edge instability problem in Harrod growth model.

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