No. L1 (2)/U.G. Courses/Physics/MQP/2021

From: THE REGISTRAR

To: Dr. S. Srinivasa Rao,
Chairman,
Board of Studies in Physics (U.G.),
Mrs. A.V.N. College,
Visakhapatnam.

Sir,

Sub: Approval of Model Question Papers – Reg.

Ref: Email dated 7-6-2021 along with Model Question Papers.

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With reference to the above, I am by direction to inform that the Revised Choice Based Credit System, U.G. Courses (w.e.f. 2020-2021) I-Semester Model Question Papers of 1) Mechanics, Waves and Oscillations 2) Skill Development Courses has been approved.

Hence, I request to arrange to circulate the same among the Teaching Staff and Students concerned and placed in A.U. website.

Yours faithfully,

M. HEMA NAIK
DEPUTY REGISTRAR (ACADEMIC)

Copies to:
1. The Dean of Academic Affairs, A.U., VSP.
3. The Dean, CDC, A.U., Vsp.
4. The Dean, Confidential, A.U., Vsp.
5. All Principals, A.U. Affiliated Colleges Offered in U.G. courses.
7. The Superintendent S.I Section for taking necessary further action.
8. The Secretary to V.C., Rector Table, P.A. to Registrar, A.U., Vsp.
9. The Director, Computer Centre, A.U., Vsp.
10. O.C. & O.O.F.
Semester 1- Physics and Electrical Appliances (SDC) model papers

Dr. Srinivas Siriki <ssravn@gmail.com>  
Mon, Jun 7, 11:28 PM (11 hours ago)

to me

Respected Sir / Madam

Please find the attached model papers for the First Year B.Sc Physics semester 1 and Electrical Appliances (Skill Development Course) semester 1

Best Regards
Dr. S. Srinvasa Rao
Professor & HOD, Department of Physics, Mrs. A.V.N. College
Chairman BOS Physics (UG), Andhra University

2 Attachments
I Year B.Sc.-PHYSICS - Semester I - Course I
(MECHANICS, WAVES AND OSCILLATIONS)
(w.e.f 2020-21)

Time: 3 Hours
Max Marks: 75

Section - A
(Essay Type Questions)  Marks: 5 x 10M = 50 Marks

Answer All questions with internal choice

1. What is the system of variable mass? Derive equation of motion of a rocket and deduce expression for its velocity.

Or

Derive Euler's equations of rotational motion for a rigid body.

2. What are central forces? Explain with examples. Show that central forces are conservative.

Or

State and prove Kepler's laws of planetary motion.

3. Describe Michelson-Morley experiment and discuss its result.

Or

What are the postulates of Special theory of relativity? Derive Lorentz transformations

4. What are Damped Oscillations? Derive equation of motion of Damped oscillator and find its solution under different conditions.

Or
What are coupled oscillators? Discuss the theory of N-coupled oscillators.

What are transverse waves? Derive an expression for the velocity of transverse waves in stretched vibrating strings.

Or

What are Ultrasonics? Write any one method to produce ultrasonic waves.

Section-B

(Short Answer Type Questions)

Answer any five questions  Marks : 5 x 5M = 25 Marks

6. Explain the terms Impact Parameter and Scattering Cross section.

7. Explain the principle and working of Gyroscope.

8. Explain briefly weightlessness and Physiological effects of astronauts

9. A rocket of mass 40 kg has 360 kg of fuel. The exhaust velocity of the fuel is 2 km/sec. Find the velocity gained by the rocket, when the rate of consumption of the fuel is 4 kg/sec.

10. Derive Einstein’s mass-energy equation.

11. Find the velocity with which a body should travel so that its length becomes half of the rest length.

12. Explain the terms logarithmic decrement and Quality factor.

13. What are normal modes and normal coordinates?
14. A string of length 8 m fixed at both ends has a tension of 49 N and mass of 0.04 kg. Find the speed of the transverse wave in the string.

15. Write the applications of Ultrasonic waves.